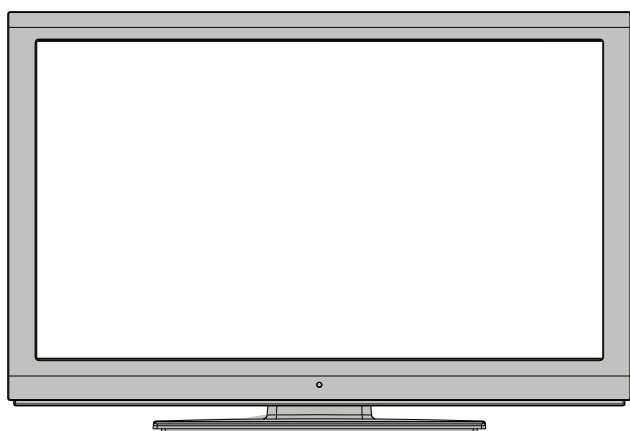


SHARP**SERVICE MANUAL**

SE00LC32LE140

Issued: 17th July 2012**LED LCD COLOUR TELEVISION**

DVB-T / DVB-C, PAL B/G, I / SECAM B/G, D/K, L/L' SYSTEM COLOUR TELEVISION

17MB62 CHASSIS**MODEL****LC-32LE140E****LC-32LE140EV****LC-32LE140EK****LC-32LE140RU**

In the interests of user safety (required by safety regulations in some countries) the set should be re-stored to its original condition and only parts identical to those specified should be used.

CONTENTS

TABLE OF CONTENTS	2
ELECTRICAL SPECIFICATIONS	5
IMPORTANT SERVICE SAFETY PRECAUTIONS	6
OPERATION MANUAL	9
DIMENSIONS	15
INTRODUCTION	16
CIRCUIT DESCRIPTIONS	19
SERVICE MENU SETTINGS	51
SOFTWARE UPDATE	56
TROUBLESHOOTING	57
OVERAL WIRING DIAGRAM	65
SCHEMATIC DIAGRAMS	66
PRINTED WIRING BOARD	75
REPLACEMENT PARTS LISTING	77
CABINET AND MECHANICAL PARTS LISTING	86

SHARP CORPORATION

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TABLE OF CONTENTS

i	SPECIFICATIONS	5
ii	IMPORTANT SERVICE SAFETY PRECAUTIONS	6
iii	OPERATION MANUAL	9
iv	DIMENSIONS	15
0.	INTRODUCTION	16
0.1.	General Block Diagram	17
0.2.	MB60 Placement of Blocks	18
1.	TUNER(TU3)	19
1.1.	General description of Sony RE216	19
2.	AUDIO AMPLIFIER STAGE WITH AZAD2102(U163, U164)	21
2.1.	General Description	21
2.2.	Features	21
2.3.	Absolute Ratings	22
2.3.1.	Electrical Characteristics	22
2.3.2.	Operating Specifications.	23
2.4.	Pinning	23
3.	AUDIO AMPLIFIER STAGE WITH TPA3113 (U168,)	24
3.1.	General Description	24
3.2.	Features	24
3.3.	Absolute Ratings	24
3.3.1.	Electrical Characteristics	24
3.3.2.	Operating Specifications	25
3.4.	Pinning	25
4.	POWER STAGE	26
4.1.	Power Management	29
5.	MICROCONTROLLER – MSTAR (U5)	31
5.1.	General Description	31
5.2.	MSTAR Block Diagram	35
5.3.	Reset Circuit	35
6.	CI INTERFACE	36
7.	USB INTERFACE	36
8.	DDR2 SDRAM K4T1G146QF (U155)	37
8.1.	General Description	37
8.2.	Features	37
8.3.	Pinning	38
9.	SCALER AND LVDS SOCKETS.	39
9.1.	LVDS sockets Block Diagram	39
9.2.	Panel Supply Switch Circuit	39
10.	SPI FLASH MEMORY - MX25L1005 (U158)	40
10.1.	General Description	40

10.2. Features	41
10.3. Absolute Maximum Ratings	41
10.4. Pinning	42
11. NAND FLASH MEMORY – NAND512XXA2C (U162)	42
11.1. General Description	42
11.2. Features	43
11.3. Pinning	44
12. LM1117(U175, U180, U181)	44
12.1. General Description	44
12.2. Features	44
12.3. Applications	44
12.4. Absolute Maximum Ratings	44
12.5. Pinning	44
13. MP2012 (U176)	45
13.1. General Description	45
13.2. Features	45
13.3. Pinning.....	45
14. RTA8283A (U23, U173)	46
14.1. General Description	46
14.2. Features	46
14.3. Pinning.....	46
15. MP1583 (U174)	47
15.1. General Description	47
15.2. Features	47
15.3. Pinning	47
16. FDC642	48
16.1. General Description	48
16.2. Features	48
16.3. Pinning	48
17. FDC604P.....	49
17.1. General Description	49
17.2. Features	49
17.3. Pinning	49
18. CONNECTORS	49
18.1. SCART (SC1)	49
18.2. HDMI (CN707,CN708)	50
18.3. VGA (CN132)	50
19. SERVICE MENU SETTINGS	51
19.1. Video Settings	52
19.2. Audio Settings	52
19.3. Options	53
19.4. Tuning Settings	54
19.5. Source Settings	54

19.6. USB Operations 55

20. SOFTWARE UPDATE 56

21. TROUBLESHOOTING 57

21.1. No Backlight Problem 57

21.2. CI Module Problem 58

21.3. Led Blinking Problem 60

21.4. IR Problem 61

21.5. Keypad Touchpad Problems 62

21.6. USB Problems 62

21.7. No Sound Problem 63

21.8. No Sound Problem at Headphone..... 63

21.9. Standby On/Off Problem..... 64

21.10. No Signal Problem 64

22. OVERALL WIRING DIAGRAM 65

23. SCHEMATIC DIAGRAMS 66

24. PRINTED WIRING BOARD 75

25. REPLACEMENT PARTS LISTING 77

26. CABINET AND MECHANICAL PARTS LISTING 86

ELECTRICAL SPECIFICATIONS

LC-32LE140E/EK/EV/RU Specifications

Specifications

TV BROADCASTING

PAL/SECAM B/G D/K K' I/I' L/L'

RECEIVING CHANNELS

VHF (BAND I/III)

UHF (BAND U)

HYPERBAND

NUMBER OF PRESET CHANNELS

1000

CHANNEL INDICATOR

On Screen Display

RF AERIAL INPUT

75 Ohm (unbalanced)

OPERATING VOLTAGE

220-240V AC, 50Hz.

AUDIO

German + Nicam Stereo

AUDIO OUTPUT POWER (W_{RMS}) (10% THD)

2 x 6

POWER CONSUMPTION (W)

135 W (max)

< 0,5 W (Standby)

PANEL

16:9 display, 32" (80 cm) Screen Size

DIMENSIONS (mm)

DxLxH (With foot): 205,5 x 772,91 x 521,90

Weight (Kg): 10,70

DxLxH (Without foot): 39 x 772,91 x 489,68

Weight (Kg): 9,15

Digital Reception (DVB-C)

Transmission Standards:

DVB-C, MPEG2, DVB-C, MPEG4

i. DEMODULATION

-Symbolrate: 4.0 Msymbols/s to 7.2 Msymbols/s

- Modulation: 16-QAM , 32-QAM ,64-QAM, 128-QAM and 256-QAM

ii. VIDEO

- All MPEG2 MP@ML formats with up-conversion and filtering to CCIR601 format.

-CVBS analogue output

iii. AUDIO

-All MPEG1 Layer 1 and 2 modes

-Sampling frequencies supported are 32, 44.1 & 48 kHz

Digital Reception	MHEG-5 ENGINE compliant with ISO/IEC 13522-5 UK engine Profile 1	for UK
	Object carousel support compliant with ISO/IEC 135818-6 and UK DTT profile	
	Frequency range: 474-850 MHz for UK models	
	170-862 MHz for EU models	
	Transmission standard: DVB-T. MPEG-2, MPEG-4	
	Demodulation: COFDM with 2K/8K FFT mode	
	FEC: all DVB modes	
	Video: MP@ML, PAL, 4:3/16:9	
	Audio: MPEG Layer I&II 32/44.148kHz.	

Cautions regarding use in high and low temperature environments

- When the unit is used in a low temperature space (e.g. room, office), the picture may leave trails or appear slightly delayed. This is not a malfunction, and the unit will recover when the temperature returns to normal.
- Do not leave the unit in a hot or cold location. Also, do not leave the unit in a location exposed to direct sunlight or near a heater, as this may cause the cabinet to deform and the LCD panel to malfunction. Storage temperature: -20°C to +60°C.

- As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

IMPORTANT SERVICE SAFETY PRECAUTION

Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

CAUTION: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE REPLACE ONLY WITH SAME TYPE
F100, F101 (T 3.15A L250V)

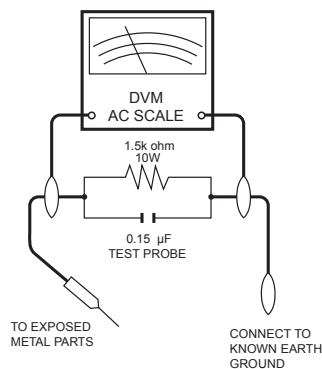
BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
 - Plug the AC cord directly into a 220~240 volt AC outlet. (Do not use an isolation transformer for this test).
 - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 μ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.
 - A true RMS reading multimeter should be used for this test, especially where the equipment uses a switch mode power supply which may result in very non-sinusoidal leakage current.
 - Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

Any reading of 1.05V peak (this corresponds to 0.7 mA. peak AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.



SAFETY NOTICE

Many electrical and mechanical parts in LCD television have special safety-related characteristics.

These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by “⚠”.

For continued protection, replacement parts must be identical to those used in the original circuit.

The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

PRECAUTIONS FOR USING LEAD-FREE SOLDER

1 Using lead-free wire solder

When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40°C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

2 Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is about 220°C which is higher than the conventional lead solder by 40°C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing.

Part No.	★	Description	Code
ZHNDai123250E	J	φ0.3mm 250g(1roll)	BL
ZHNDai126500E	J	φ0.6mm 500g(1roll)	BK
ZHNDai12801KE	J	φ1.0mm 1kg(1roll)	BM

END OF LIFE DISPOSAL



Attention: Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

A. Information on Disposal for Users (private households)

1. In the European Union

Attention: If you want to dispose of this equipment, please do not use the ordinary dust bin!

Used electrical and electronic equipment must be treated separately and in accordance with legislation that requires proper treatment, recovery and recycling of used electrical and electronic equipment.

Following the implementation by member states, private households within the EU states may return their used electrical and electronic equipment to designated collection facilities free of charge*. In some countries* your local retailer may also take back your old product free of charge if you purchase a similar new one.

*) Please contact your local authority for further details.

If your used electrical or electronic equipment has batteries or accumulators, please dispose of these separately beforehand according to local requirements.

By disposing of this product correctly you will help ensure that the waste undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health which could otherwise arise due to inappropriate waste handling.

2. In other Countries outside the EU

If you wish to discard this product, please contact your local authorities and ask for the correct method of disposal.

For Switzerland: Used electrical or electronic equipment can be returned free of charge to the dealer, even if you don't purchase a new product. Further collection facilities are listed on the homepage of www.swico.ch or www.sens.ch.

B. Information on Disposal for Business Users

1. In the European Union

If the product is used for business purposes and you want to discard it:

Please contact your SHARP dealer who will inform you about the take-back of the product. You might be charged for the costs arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

For Spain: Please contact the established collection system or your local authority for take-back of your used products.

2. In other Countries outside the EU

If you wish to discard of this product, please contact your local authorities and ask for the correct method of disposal.



The battery supplied with this product contains traces of Lead.

For EU: The crossed-out wheeled bin implies that used batteries should not be put to the general household waste! There is a separate collection system for used batteries, to allow proper treatment and recycling in accordance with legislation. Please contact your local authority for details on the collection and recycling schemes.

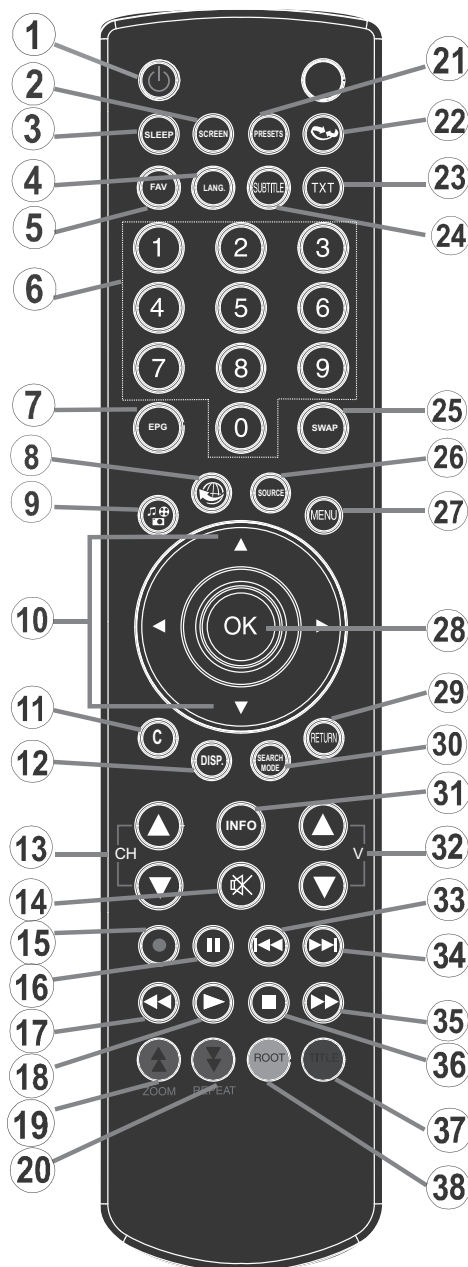
For Switzerland: The used battery is to be returned to the selling point.

For other non-EU countries: Please contact your local authority for correct method of disposal of the used battery.

OPERATION MANUAL

Remote Control Buttons

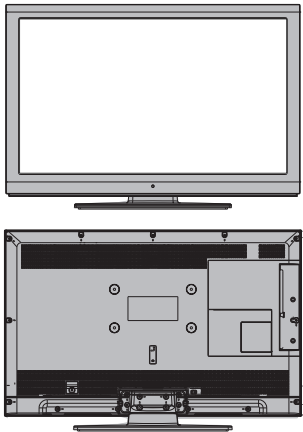
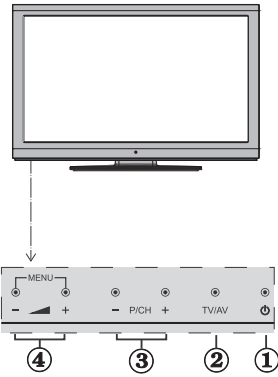
1. Standby
2. Image size / Zooms videos (in Media Browser video mode)
3. Sleep Timer
4. Mono / Stereo - Dual I-II / Current Language (*) (in DVB channels)
5. Favourite Mode Selection (in DVB channels)
6. Numeric buttons
7. Electronic programme guide (in DVB channels)
8. No function
9. Media Browser
10. Navigation buttons (Up/Down/Left/Right)
11. No function
12. Recordings Library
13. Programme Down / Page up - Programme Up / Page down
14. Mute
15. Programme recording
16. Pause (in Media Browser mode) / Timeshift recording
17. Rapid reverse (in Media Browser mode)
18. Play (in Media Browser mode)
19. Red button
20. Green button / List Schedule (in EPG) / Tag / Untag All (in favourite list) / Play-Slideshow (in Media Browser) / Loop-Shuffle (in Media Browser)
21. Picture mode selection / Changes picture mode (in Media Browser video mode)
22. No function
23. Teletext / Mix (in TXT mode)
24. Subtitle on-off (in DVB channels)
25. Previous programme
26. AV / Source selection
27. Menu on-off
28. Okay (Confirm) / Hold (in TXT mode) / Edit Channel List
29. Exit / Return / Index page (in TXT mode)
30. No function
31. Info / Reveal (in TXT mode)
32. Volume Up / Down
33. No function
34. No function
35. Rapid advance (in Media Browser mode)



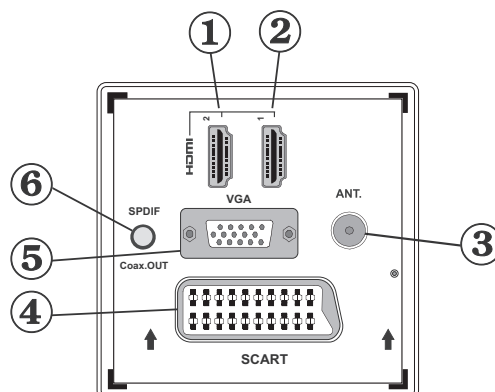
36. Stop (in Media Browser mode)
37. Blue button / Edit Channel List / Filter (In Favourite List&EPG)
38. Yellow button / Timeline Schedule (in EPG)

Operation Manual (Continued)

LCD TV and Operating Buttons

FRONT and REAR VIEW	Control buttons VIEW	Control Buttons
		1. Standby/On button 2. TV/AV button 3. Programme Up/Down buttons 4. Volume Up/Down buttons Note: Press “ ” and  + buttons at the same time to view main menu.

Viewing the Connections - Back Connectors



1. HDMI 2: HDMI Input

2. HDMI 1: HDMI Input

HDMI Inputs are for connecting a device that has an **HDMI** socket. Your LCD TV is capable of displaying High Definition pictures from devices such as a High Definition Satellite Receiver or DVD Player. These devices must be connected via the HDMI sockets or Component Socket. These sockets can accept either 720p or 1080i signals. No sound connection is needed for an HDMI to HDMI connection.

3. RF Input connects to an aerial antenna system or a cable.

Note that if you use a decoder or a media recorder, you should connect the aerial cable through the device to the television with an appropriate antenna cable, as shown in the illustration in the following pages.

4. SCART input or output for external devices. Connect the SCART cable between SCART socket on TV and SCART socket on your external device (such as a decoder, a VCR or a DVD player).

Note: If an external device is connected via the SCART socket, the TV will automatically switch to AV mode.
Note: S-VHS signal is supported via the scart socket (optional).

5. PC Input is for connecting a personal computer to the TV set.

Connect the PC cable between the **PC INPUT** on the TV and the PC output on your PC.

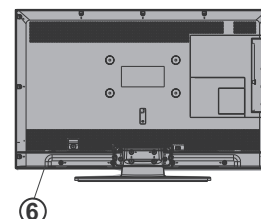
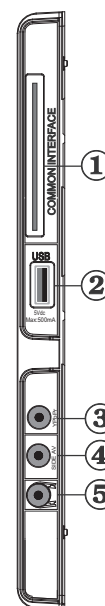
6. SPDIF Coaxial Out outputs digital audio signals of the currently watched source.

Use an **SPDIF coaxial cable** to transfer audio signals to a device that has SPDIF input

Operation Manual (Continued)

Viewing the Connections - Side Connectors

1. CI Slot is used for inserting a CI card. A CI card allows you to view all the channels that you subscribe to. For more information, see "Conditional Access" section.
2. USB Inputs.
Note that programme recording feature is available via these USB inputs. You can connect external hard disk drives to this input.
3. **Component Video Input (YPbPr)** is used for connecting component video. You can connect the component video and audio sockets with a device that has component output. To do this, you must use the supplied component video connection cable for enabling connection. First, plug single jack of the cable to the TV's YPbPr socket (side). Afterwards, insert your component cable's (not supplied) connectors into the plural part of the Component video connection cable. Colours of the connected jacks should match.
4. **Side audio-video connection** input is used for connecting video and audio signals of external devices. To make a video connection, you must use the supplied AV connection cable for enabling connection. First, plug singular jack of the cable to the TV's Side AV socket. Afterwards, insert your video cable's (not supplied) connector into the YELLOW input (located on the plural side) of the supplied AV connection cable. Colours of the connected jacks should match.
To enable audio connection, you must use RED and WHITE inputs of the side AV connection cable. Afterwards, insert your device's audio cable's connectors into the RED and WHITE jack of the **supplied** side AV connection cable. Colours of the connected jacks should match.
Note: You should use audio inputs of side AV connection cable (RED & WHITE) to enable sound connection when connecting a device to your TV by using PC or COMPONENT VIDEO input.
5. Headphone jack is used for connecting an external headphone to the system. Connect to the HEADPHONE jack to listen to the TV from headphones (optional).
6.  switch is used for turning the TV on or off.



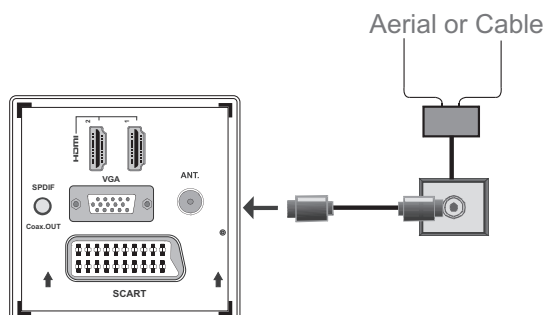
Power Connection

IMPORTANT: The TV set is designed to operate on 220-240V AC, 50Hz.

- After unpacking, allow the TV set to reach the ambient room temperature before you connect the set to the mains. Plug the power cable to the mains socket outlet.

Aerial Connection

- Connect the aerial ,cable TV plug to the AERIAL INPUT socket located at the rear of the TV.



Operation Manual (Continued)

Using USB Inputs

USB Connection

- You can connect a USB hard disk drive or USB memory stick to your TV by using the USB inputs of the TV. This feature allows you to play files stored in a USB drive or record programmes.
- 2.5" and 3.5" inch (hdd with external power supply) external hard disk drives are supported.
- To record a programme, you should first connect a USB disk to your TV while the TV is switched off. You should then switch on the TV to enable recording feature. Otherwise, recording feature will not be available.
- If one or more partitions of your hard drive are exFat formatted, none or less partitions might be visible, even if they are formatted with a different file system than exFat.

IMPORTANT !

- You may back up your files before making any connections to the TV set in order to avoid any possible data loss. Note that manufacturer will not be responsible for any file damage or data loss.
- It is possible that certain types of USB devices (e.g. MP3 Players) or USB hard disk drives/memory sticks may not be compatible with this TV.

IMPORTANT: The TV supports only FAT32 and NTFS disk formatting. However, NTFS format is not supported for recording features. For recording, if you connect a USB disk with NTFS format, the TV will ask you to format the content. See the section, "Format Disk" in the following pages for more information on disk formatting.

Note that ALL the data stored on the USB disk will be lost and then the disk format will be converted to FAT32 in such a case.

USB Disk Connection

- Plug your USB device to the USB input of the TV.

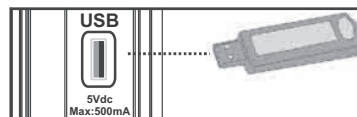
Note: Plug or unplug your USB disk while the TV is switched off.

Note: If you are going to connect a USB hard disk drive to the TV set, USB connection cable used between the disk drive and the TV should have a USB logo and should be as short as possible.

Note: While formatting a USB hard disk that has 1TB (Tera Byte) or more file capacity, you can experience problems with the formatting process. In such a case, you should format the disk with your personal computer and the formatted disk type should be FAT32.

SIDE VIEW

USB MEMORY



CAUTION !

- Quickly plugging and unplugging USB devices, is a very hazardous operation. Especially, do not repeatedly quickly plug and unplug the drive. This may cause physical damage to the USB player and especially the USB device itself.
- Do not pull out USB module while playing or recording a file.

Programme Recording

To record a programme, you should first connect a USB disk to your TV while the TV is switched off. You should then switch on the TV to enable recording feature.

IMPORTANT: When using a new USB hard disk drive, it is recommended that you first format the disk using your TV's "Format Disk" option.

- For using recording function, you should connect a USB disk or an external hard disk drive to the TV and connected USB disk should have at least 1 GB capacity and should have 2.0 speed compatibility. If the connected USB device does not support 2.0 speed, an error message will be displayed.

Note: Recorded programmes are saved into the connected USB disk. If desired, you can store/copy recordings on a computer; however, these files will not be available to be played on a computer. You can play the recordings only via your TV.

- For more information on recording programmes, see sections "Instant Recording", "Timeshifting", "Electronic Programme Guide", "Recordings Library" or "Recording Timers" in the following parts.
- Recorded programmes are split into 4GB partitions.
- Recorded programmes are stored in the following directory of the connected USB disk: \DVR\RECS. All recordings are indicated with a number. A text (txt) file is created for each recording. This text file includes information such as broadcaster, programme, and recording time.
- Timeshifting may be stopped according to USB device write speed. If the USB device speed is not enough for video stream bitrate, timeshifting may be stopped and recording may fail. If HD service bitrate is greater than 13 Mbps/sec. some freeze can be seen during timeshifting on both USB disk and on external HDD.

Operation Manual (Continued)

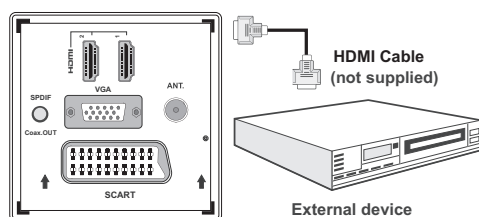
- Recordings of HD programmes can occupy bigger size on the USB disk depending on the broadcasts resolution. For this reason it is recommended to use USB hard disk drives for recording HD programmes.
- Do not plug out the USB/HDD during the recording. This may harm the connected USB/HDD.
- Multipartiton support is available. Maximum two different partitions are supported. If the disk have more than two partitions, crash may occur. First partition of the usb disk is used for PVR ready features. It also must be formatted as primary partition to be used for PVR ready features.
- Some stream packets may not be recorded because of signal problems, so sometimes video may freezes during playback.
- Record, Play, Pause, Display (for PlayListDialog) keys could not be used when teletext is ON. If a recording starts from timer when teletext is ON, teletext is automatically turned of f. Also teletext usage is disabled when there is ongoing recording or playback.
- Radio record is not supported.
- The TV can record programmes up to ten hours.

Connecting to a DVD Player via HDMI

Please refer to your DVD player's instruction book for additional information. Power off both the TV and the device before making any connections.

Note: Not all cables shown in the illustration are supplied.

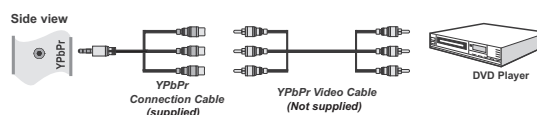
- If your DVD player has an **HDMI** socket, you can connect via **HDMI** for better video and audio quality.



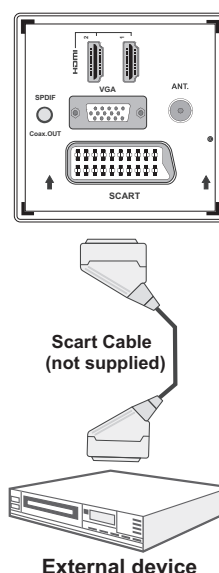
- When you connect to DVD player as illustrated above, switch to the connected **HDMI** source. See, **Input Selection** section for more information on changing sources.

Connecting to a DVD Player via Component Sockets (YPbPr) or Scart Cable

- Some DVD players are connected through **COMPONENT SOCKETS (YPbPr)**. In this case, you must use the supplied Component video connection cable for enabling connection. First, plug single jack of the cable to the TV's YPbPr socket (side). Afterwards, insert your component cable's (not supplied) connectors into the socket part of the Component video connection cable (see illustration below). Colours of the connected jacks should match.
- To enable audio connection, use the **VGA/Component Audio cable**. First, plug single jack of the cable to the TV. Afterwards, insert your DVD player's audio cable's connectors into the socket part of the **VGA/Component audio connection cable** (see illustration below). Colours of the connected jacks should match.



- When the connection is made, switch to **YPbPr** source. See, **Input selection** section.
Note: To connect YPbPr device, you should use supplied component (YPbPr) connection cable
- You may also connect through the **SCART** input.

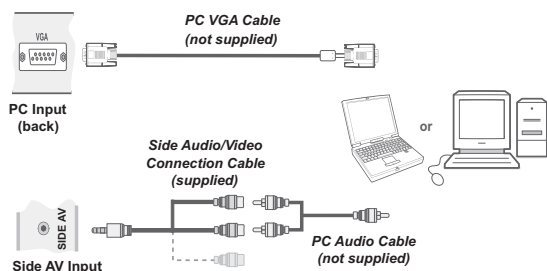


- **Note:** These three methods of connection perform the same function but in different levels of quality. It is not necessary to connect by all three methods.

Operation Manual (Continued)

Connecting the LCD TV to a PC

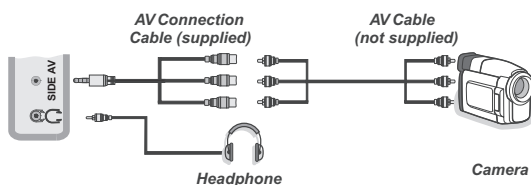
For displaying your computer's screen image on your LCD TV, you can connect your computer to the TV set. Power off both computer and display before making any connections. Use 15-pin D-sub display cable to connect a PC to the LCD TV. When the connection is made, switch to PC source. See "Input selection" section. Set the resolution that suits your viewing requirements. Resolution information can be found in the appendix parts



Using Side AV Connectors

You can connect a range of optional equipment to your LCD TV using side connectors of the TV.

- For connecting a camcorder or camera, you should use **AV** socket (side). To do this, you must use the supplied **video/audio connection cable**. First, plug single jack of the cable to the TV's **AV IN** socket (side). Afterwards, insert your camera cable's (not supplied) connectors into the plural part of the **video/audio connection cable**. Colours of the connected jacks should match. See illustration below.
- Afterwards, you should switch to **Side AV** source. See the section **Input selection** in the following sections for more information.



- To listen the TV sound from headphones, you should connect headphones to your TV by using the **HEADPHONE** jack as illustrated above..

Remote Control Handset

Inserting Batteries

- Remove the battery cover located on the back of the handset by gently pulling backwards from the indicated part.
- Insert two **AAA/R3** or equivalent type batteries inside. Observe the correct polarity (+/-) when inserting batteries and replace the battery cover.



Note: Remove the battery from remote control handset when it is not to be used for a long period. Otherwise it can be damaged due to any leakage of batteries. Remote range is approximately 7m/23ft.

Switching On/Off

To Switch the TV On

Connect the power cord to the 220-240V AC 50 Hz.

- Switch the "I" button on the bottom right hand side under the screen to position "I" so the TV will switch to standby mode. Then the standby LED lights up.
- To switch on the TV from standby mode either:
 - Press the "⏻" button, **CH▲ / CH▼** or a numeric button on the remote control.
 - Press the "⏻" or +/- button on the TV.
- The TV will then switch on.

Note: If you switch on your TV via **CH▲ / CH▼** buttons on the remote control or on the TV set, the programme that you were watching last will be reselected.

By either method the TV will switch on.

To Switch the TV to Standby

To switch the TV to low power stand by press the "⏻" button on the remote control or right hand side of the TV.

Note: When the TV is switched to standby mode, standby LED can blink to indicate that features such as Standby Search, Over Air Download or Timer is active.

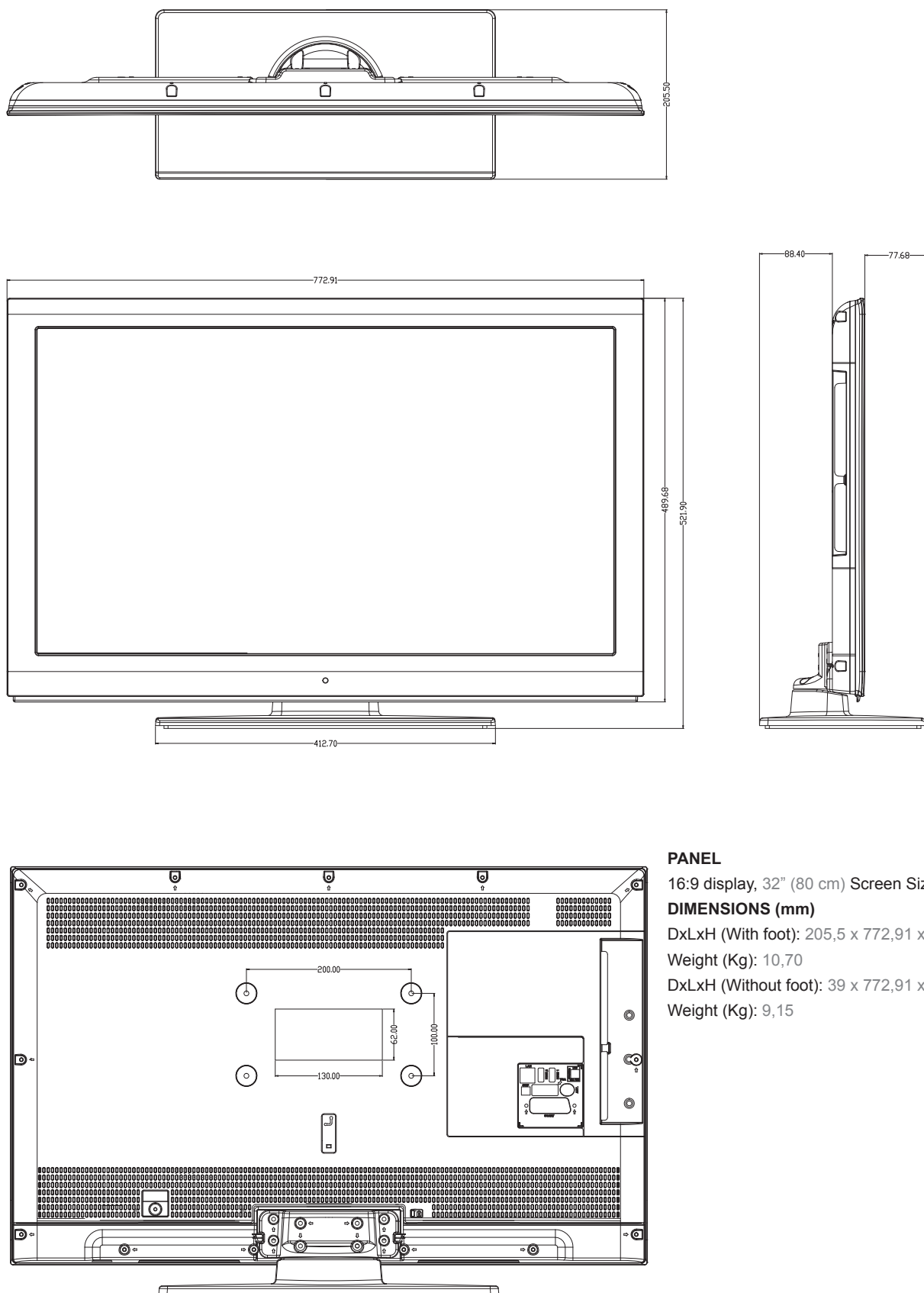
To Switch the TV Off

- Switch the "I" button on the bottom right hand side under the screen to position 2 as illustrated,  to isolate the TV from the mains, the LED will go out.

DIMENSIONS

LC-32LE140

Dimensional Drawings



PANEL

16:9 display, 32" (80 cm) Screen Size

DIMENSIONS (mm)

DxLxH (With foot): 205,5 x 772,91 x 521,90

Weight (Kg): 10,70

DxLxH (Without foot): 39 x 772,91 x 489,68

Weight (Kg): 9,15

INTRODUCTION

0. INTRODUCTION

17MB62 mainboard is driven by MStar SOC. This IC is capable of handling Video and audio processing, Scaling-Display processing, 3D comb filter, OSD and text processing, LVDS transmitting, channel and MPEG2/4 decoding, integrated DVB-T/C demodulator and media center functionality.

TV supports PAL, SECAM, NTSC colour standards and multiple transmission standards as B/G, D/K, I/I', and L/L' including German and NICAM stereo. Also DVB T, DVB-C are supported internal demodulators of Mstar IC and DVB-S/S2 is supported with external demodulator.

Sound system output is supplying max. 2x2,5W (less 10%THD at max output) with 4Ω speakers or 2x6W for stereo 8Ω speakers.

Supported peripherals are:

- 1 RF input VHF I, VHF III, UHF @ 75Ω(Common)
- 1 Side AV (CVBS, R/L_Audio)
- 1 SCART socket(Common)
- 1 YPbPr (Optional)
- 1 PC input(Common)
- 2 HDMI 1.3 input(1 HDMI input is common, 1 input is optional)
- 1 S/PDIF output(Optional)
- 1 Headphone(Optional)
- 1 Common interface(Common)
- 1 USB(Common)
- 1 DVD(Optional)
- 1 On-board Keypad(Optional)
- 1 External Keypad(Optional)
- 1 External TouchPad(Optional)

2 Layer PCB



0.2 MB62 Placement of Blocks



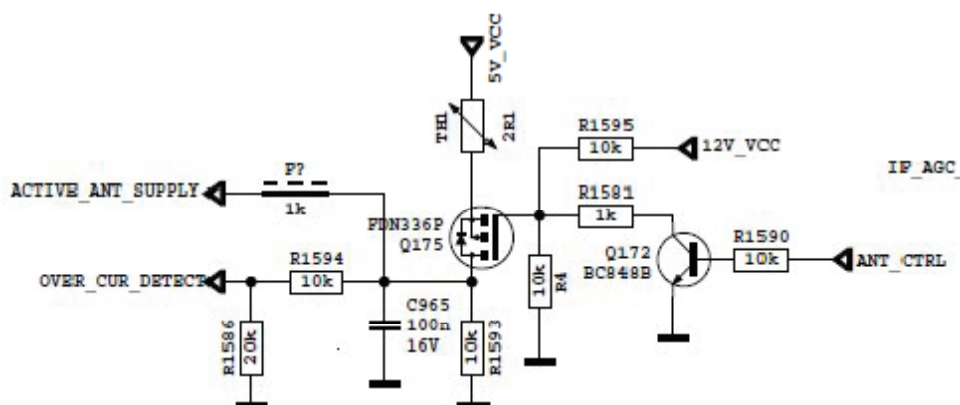
CIRCUIT DESCRIPTIONS

1. TUNER(TU3)

A horizontal mounted and Digital Half-Nim tuner is used in the product, which covers 3 Bands(From 48MHz to 862MHz for COFDM, from 45.25MHz to 863.25MHz for CCIR CH). The tuning is available through the digitally controlled I2C bus (PLL). Below you will find info about the tuner.

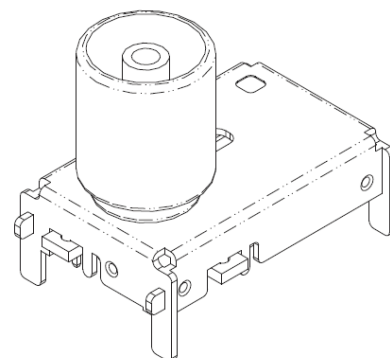
In active antenna option, the following circuit are used. ANT_CTRL pin is controlled by microcontroller. If ANT_CTRL is low, ANT_PWR will be low. If ANT_CTRL is high, ANT_PWR will be high.

OVER_CUR_DETECT pin is a monitor for short circuit in antenna. OVER_CUR_DETECT is low, ANT_CTRL will be low, so ANT_PWR will be low. Finally, short circuit protection is done by circuits and microcontroller.



1.1. General description of Sony RE216:

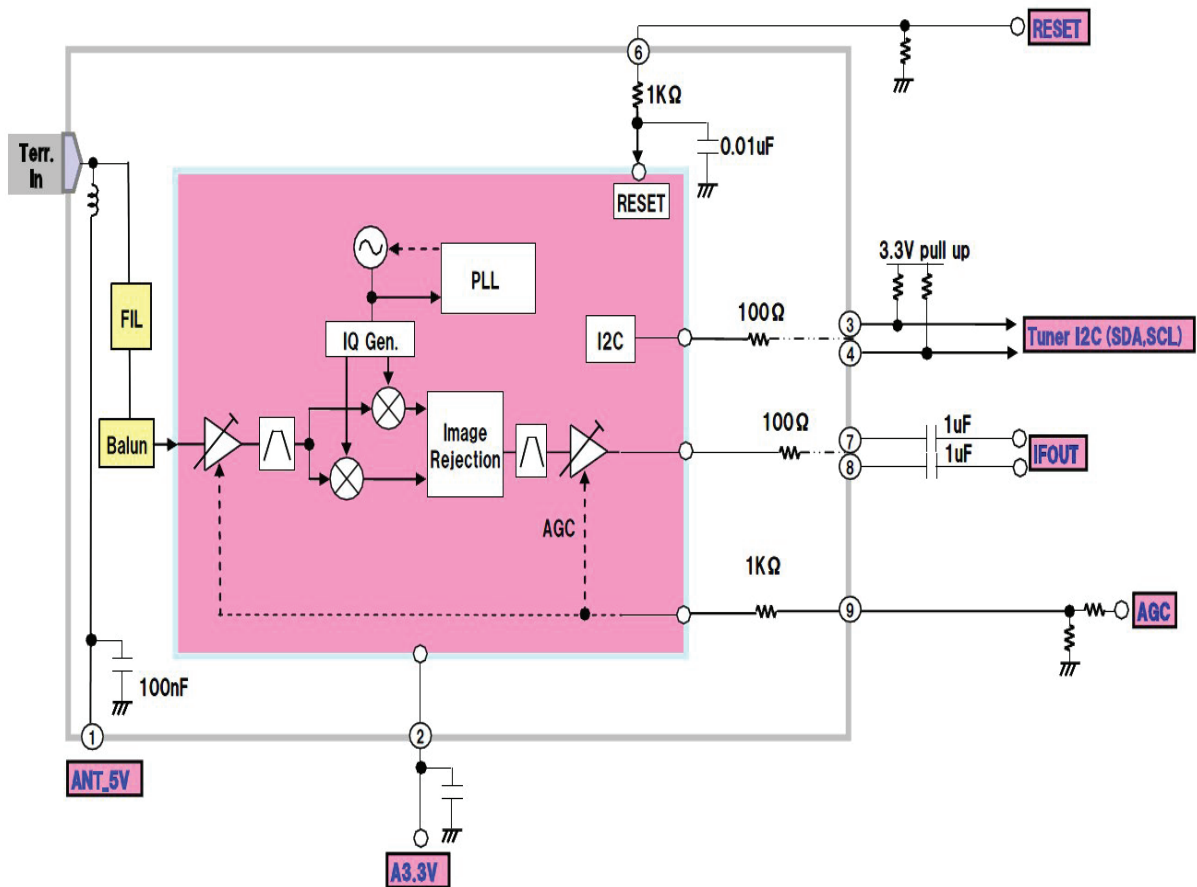
The SUT-RE216 is designed for terrestrial TV (digital & analog) and digital cable reception. It includes a full band tuner and a channel filtering for digital signals. It provides a low IF output after channel filtering to drive a channel demodulator. Tuning, band switching and initialization are made via an I2C bus interface. The module is built on a low-loss printed circuit board carrying all the components in a metal housing frame with top and rear covers. The single aerial connector is mounted on one frame side and all other connections are made via pins at the bottom.



Features:

- ✓ Full frequency range from 47 to 870 Mhz
- ✓ Digital Platform (DVB-T/T2, DVB-C, ISDB-T & ATSC)
- ✓ Analog platforms (PAL B/G/I/D/K, NTSC M & SECAM L/L')
- ✓ Low IF tuner concept

- ✓ Programmable channel Filter bandwidth
- ✓ Fully I2C bus controlled
- ✓ For Hybrid TV applications



---Pinning Table

No	Item	Description
1	ANT_5V	5V supply to an external amplifier via antenna connector. Maximum current is 200mA. If this function is not required in customer's application, it should be connected with GND.
2	A3.3V	3.3V power supply for RF IC. The power supply is recommended to use series regulator etc. in order to reduce ripple component.
3	I2C_SCL	I2C serial clock (0/3.3V, fast mode)
4	I2C_SDA	I2C serial data (0/3.3V, fast mode)
5	GND	-
6	RESET	RF IC system reset (0/3.3V). Low: RESET, High: Normal operation RESET must be kept "Low" when the status is power on.
7	IF_N	Low IF output for external demodulator.
8	IF_P	Low IF output for external demodulator.
9	AGC	IF AGC input from external demodulator

and Application Block Diagram of Tuner---

2. AUDIO AMPLIFIER STAGE WITH AZAD2102(U163, U164)

2.1. General Description

17MB62 uses two 2.5W Class D Mono Audio Amplifiers for from 16" to 24" TVs. AZAD2102B is a 2.9 Watts (max. can offer 3.0 Watts @ Load = 3Ω, THD=10%, AVdd=DVdd=5.5V) with high efficiency filter-free class-D audio power amplifier in a 1613 mm x 1613 mm wafer chip scale package (WCSP). AZAD2102B uses Current-switch technology to achieve high performance class-d amplifier that features 0.03% THD, 85% efficiency, -70 dB PSRR, to improve RF-rectification immunity.

AZAD2102B provide a Vibration-Spectrum modulation clock for PWM Output. This vibration frequency is around 10KHZ shift (+/- 5KHZ of Fpwm).

The advantage of the small size package (WCSP) makes AZAD2102B very suitable for mobile phone and PDA device application. And the Class-D amplifier structure let AZAD2102B to have highly efficiency power consumption than Class-AB amplifier. AZAD2102B can shrink the application board, reduce system cost, and external components.

ESD level protection I/O embedded in AZAD2102B. For general applications, doesn't need to add extra ESD protection device (like Varistors) in application system for AZAD2102B's I/O.

2.2. Features

- CMOS Technology
- High Efficiency 85%
- High PSRR 70dB at 217Hz
- Differential OP-amp Input
- AZAD2102B provides Vibration-Spectrum Modulation clock for reduce EMI
- Provide Mute function(set Mute_B to GND will go into Mute status)
- For the input stage AZAD2102B built-in a 10Kohm resistors (Gain setting=29.5dB)
- Maximum Battery Life and Minimum Heat
- Efficiency With an 8-Ω Speaker:
- 3.5 mA Quiescent Current
- Output Power at 10% THD
- 2.85Watts at AVdd=DVdd=5.0V, Rload=4Ω
- 1.45Watts at AVdd=DVdd=3.6V, Rload=4Ω
- 0.30Watts at AVdd=DVdd=3.0V, Rload=4Ω
- 1.75Watts at AVdd=DVdd=5.5V, Rload=8Ω
- 0.87Watts at AVdd=DVdd=3.6V, Rload=8Ω
- 0.41Watts at AVdd=DVdd=3.0V, Rload=8Ω
- Eliminate Power on and Power-off "Pop" noise
- A Fewer External Components
- Optimized PWM Output Stage Eliminates LC Output Filter
- Internally generate 290 kHz Switching Frequency to eliminate Capacitor and Resistor
- Improve PSRR (-70 dB) and Wide Supply Voltage (3.0 V to 5.5 V)
- Fully Differential Design Reduces RF Rectification
- This chip has been built-in a very strong ESD protection.
- System level ESD 4KV (IEC 61000-4-2 ESD Contact Level)
- Wafer Chip Scale Package (WCSP)
- TSSOP Package with Exposed Pad

2.3. Absolute Ratings

2.3.1. Electrical Characteristics

VDD=AVdd=DVdd, VSS=AVss=DVss=Ground

TA = 25°C, Filter Bandwidth = 20 ~20KHz

PARAMETER	Symbol	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	Vop	AVdd=DVdd to AVss=DVss	3.0	5	5.5	V
Output offset voltage	VOS	VDD = 5.5 V, VI = 0 V, AV = 6 V/V		4.5	6.5	mV
		VDD = 3.6 V, VI = 0 V, AV = 6 V/V		2.1	4.0	
		VDD = 3.0 V, VI = 0 V, AV = 6 V/V		1.2	3.0	
Power supply rejection ratio	PSRR	VDD = 3.0 V to 5.5 V, AV = 2 V/V input ac grounded with Ci=2.2uF,Vripple=200mVpp, RL=8Ω,f=217Hz		-68		dB
Common mode rejection ratio	CMRR	VDD = 3.0 V to 5.5 V, Vi c = VDD/2 to 0.5 V, Vi c = VDD/2 to 0.5 VDD -0.8 V,		-65		dB
High level Input current	I _{IHL}	VDD= 5.5V, Vi=5.8V		25		uA
Low level Input current	I _{ILL}	VDD= 5.5V, Vi=-0.3V		1		uA
Operation current	Iop	VDD = 5.5 V, no load		3.6	5.0	mA
		VDD = 3.6 V, no load		3.0	4.2	
		VDD = 3.0 V, no load		2.5	3.5	
Output switching frequency	Fpwm	VDD = 5.5 V, no load		290		KHz
		VDD = 3.6 V, no load		300		
		VDD = 3.0 V, no load		315		
Vibration-Spectrum Modulation clock Range	Fvs	VDD = 5.0 V, no load		+/-5	+/-10	KHz
Under Voltage Protection	UVP	Vin+ and Vin- connect to GND, no load		2.0	2.5	V
Mute_B pin Impedance	RMuB	Mute_B to Ground		270		KΩ
Gain	Gain	VDD=5.0V,Ri=5KΩ+10KΩ (Av=20V/V)	18	20	22	V/V

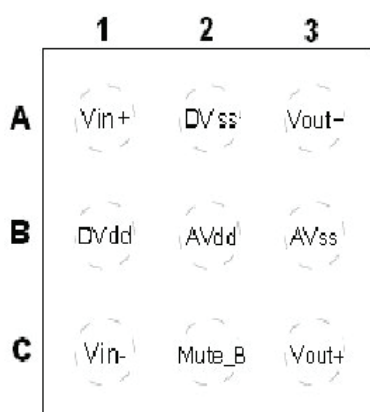
2.3.2. Operating Specifications

$T_A = 25^\circ\text{C}$, Gain = 20 V/V,

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
Pw	Output power	THD + N = 10%, f = 1 kHz, $R_L = 4\ \Omega$	VDD = 5.0 V		2.85		W
			VDD = 3.6 V		1.45		
			VDD = 3.0 V		0.77		
		THD + N = 1%, f = 1 kHz, $R_L = 4\ \Omega$	VDD = 5.0 V		2.25		W
			VDD = 3.6 V		1.15		
			VDD = 3.0 V		0.60		
		THD + N = 10%, f = 1 kHz, $R_L = 8\ \Omega$	VDD = 5.0 V		1.75		W
			VDD = 3.6 V		0.87		
			VDD = 3.0 V		0.47		
		THD + N = 1%, f = 1 kHz, $R_L = 8\ \Omega$	VDD = 5.0 V		1.39		W
			VDD = 3.6 V		0.70		
			VDD = 3.0 V		0.36		
THD+N	Total harmonic distortion plus noise	VDD = 5.0 V, PO = 1 W, $R_L = 8\ \Omega$, f = 1 kHz			0.15		%
		VDD = 3.6 V, PO = 0.5 W, $R_L = 8\ \Omega$, f = 1 kHz			0.12		
		VDD = 3.0 V, PO = 200 mW, $R_L = 8\ \Omega$, f = 1 kHz			0.09		
PSRR	Supply ripple rejection ratio	VDD = 3.6 V, $A_v = 20\text{V/V}$, Inputs connect to grounded with $C_i = 1.0\ \mu\text{F}$	F = 217 Hz, $V_{\text{Ripple}} = 200\text{ mVpp}$		-67		dB
SNR	Signal-to-noise ratio	VDD = 5 V, PO = 1 W, $R_L = 8\ \Omega$			95		dB
Vnoise	Output noise level	VDD = 3.6 V, f = 20 Hz to 20 kHz, Inputs ac-grounded with $C_i = 1.0\ \mu\text{F}$	No weighting		45		μVRMS
			A weighting		40		
CMRR	Common mode rejection ratio	VDD = 3.6 V, $V_{\text{in}} = 100\text{mVpp}$			-72		dB
ZI	Input impedance			8	10	12	k Ω
ZF	Feedback resistor			120	150	180	k Ω

2.4. Pinning

Top View



Pad Location	Pad Name	I/O	Function
A1	Vin+	I	Non-inverting Input
B1	DVdd		Supply Voltage for control circuit
C1	Vin-	I	Inverting Input
A2	DVss		Ground pad for control circuit
B2	AVdd		Supply Voltage for Power MOS
C2	Mute_B	I	Mute control pin
A3	Vout-	O	Negative Output
B3	AVss		Ground pad for Power MOS
C3	Vout+	O	Positive Output

3. AUDIO AMPLIFIER STAGE WITH TPA3113(U168)

3.1. General Description

17MB62 uses a 6W Class D Mono Audio Amplifiers for from 26" to 32" TVs. The TPA3113D2 is a 6-W (per channel) efficient, Class-D audio power amplifier for driving bridged-tied stereo speakers. Advanced EMI Suppression Technology enables the use of inexpensive ferrite bead filters at the outputs while meeting EMC requirements. SpeakerGuard™ speaker protection circuitry includes an adjustable power limiter and a DC detection circuit. The adjustable power limiter allows the user to set a "virtual" voltage rail lower than the chip supply to limit the amount of current through the speaker. The DC detect circuit measures the frequency and amplitude of the PWM signal and shuts off the output stage if the input capacitors are damaged or shorts exist on the inputs.

The TPA3113D2 can drive stereo speakers as low as 4 Ω . The high efficiency of the TPA3113D2, 87%, eliminates the need for an external heat sink when playing music.

The outputs are also fully protected against shorts to GND, VCC, and output-to-output. The short-circuit protection and thermal protection includes an auto-recovery feature.

3.2. Features

- 6-W/ch into an 8- Ω Loads at 10% THD+N From a 10-V Supply
- 12-W into a 4- Ω Mono Load at 10% THD+N From a 10-V Supply
- 87% Efficient Class-D Operation Eliminates Need for Heat Sinks
- Wide Supply Voltage Range Allows Operation from 8 V to 26 V
- Filter-Free Operation
- SpeakerGuard™ Speaker Protection Includes Adjustable Power Limiter plus DC Protection
- Flow Through Pin Out Facilitates Easy Board Layout
- Robust Pin-to-Pin Short Circuit Protection and Thermal Protection with Auto Recovery Option
- Excellent THD+N / Pop-Free Performance
- Four Selectable, Fixed Gain Settings
- Differential inputs

3.3. Absolute Ratings

3.3.1. Electrical Characteristics

DC CHARACTERISTICS

$T_A = 25^\circ\text{C}$, $V_{CC} = 12\text{ V}$, $R_L = 8\ \Omega$ (unless otherwise noted)

PARAMETER		TEST CONDITIONS		MIN	TYP	MAX	UNIT
V _{OS}	Class-D output offset voltage (measured differentially)	V _I = 0 V, Gain = 36 dB			1.5	15	mV
I _{CC}	Quiescent supply current	$\overline{SD}$ = 2 V, no load, PV _{CC} = 12V			20	35	mA
I _{CC(SD)}	Quiescent supply current in shutdown mode	$\overline{SD}$ = 0.8 V, no load, PV _{CC} = 12V			200		μA
r _{DS(on)}	Drain-source on-state resistance	V _{CC} = 12 V, I _O = 500 mA, T _J = 25°C	High Side		400		mΩ
			Low side		400		
G	Gain	GAIN1 = 0.8 V	GAIN0 = 0.8 V	19	20	21	dB
			GAIN0 = 2 V	25	26	27	
		GAIN1 = 2 V	GAIN0 = 0.8 V	31	32	33	dB
			GAIN0 = 2 V	35	36	37	
t _{ON}	Turn-on time	$\overline{SD}$ = 2 V			14		ms
t _{OFF}	Turn-off time	$\overline{SD}$ = 0.8 V			2		μs
GVDD	Gate Drive Supply	I _{GVDD} = 2mA		6.4	6.9	7.4	V
V _O	Output Voltage maximum under PLIMIT control	V _(PLIMIT) = 2 V; V _I = 1V rms		6.75	7.90	8.75	V

3.3.2 Operating Specifications

AC CHARACTERISTICS

$T_A = 25^\circ\text{C}$, $V_{CC} = 12\text{ V}$, $R_L = 8\ \Omega$ (unless otherwise noted)

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
K_{SVR} Supply ripple rejection	200 mV _{PP} ripple from 20 Hz–1 kHz, Gain = 20 dB, Inputs ac-coupled to AGND		–70		dB
THD+N Total harmonic distortion + noise	$R_L = 8\ \Omega$, $f = 1\text{ kHz}$, $P_O = 3\text{ W}$ (half-power)		0.06		%
V_n Output integrated noise	20 Hz to 22 kHz, A-weighted filter, Gain = 20 dB		65		μV
			–80		dBV
Crosstalk	$P_O = 1\text{ W}$, Gain = 20 dB, $f = 1\text{ kHz}$		–100		dB
SNR Signal-to-noise ratio	Maximum output at THD+N < 1%, $f = 1\text{ kHz}$, Gain = 20 dB, A-weighted		102		dB
f_{osc} Oscillator frequency		250	310	350	kHz
Thermal trip point			150		$^\circ\text{C}$
Thermal hysteresis			15		$^\circ\text{C}$

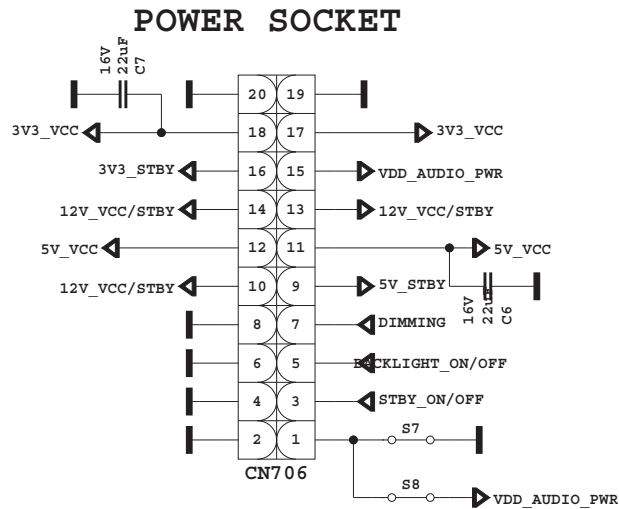
3.4. Pinning

PIN		I/O/P	DESCRIPTION
NAME	Pin Number		
$\overline{\text{SD}}$	1	I	Shutdown logic input for audio amp (LOW = outputs Hi-Z, HIGH = outputs enabled). TTL logic levels with compliance to AVCC.
$\overline{\text{FAULT}}$	2	O	Open drain output used to display short circuit or dc detect fault status. Voltage compliant to AVCC. Short circuit faults can be set to auto-recovery by connecting $\overline{\text{FAULT}}$ pin to $\overline{\text{SD}}$ pin. Otherwise, both short circuit faults and dc detect faults must be reset by cycling PVCC.
LINP	3	I	Positive audio input for left channel. Biased at 3V.
LI NN	4	I	Negative audio input for left channel. Biased at 3V.
GAIN0	5	I	Gain select least significant bit. TTL logic levels with compliance to AVCC.
GAIN1	6	I	Gain select most significant bit. TTL logic levels with compliance to AVCC.
AVCC	7	P	Analog supply
AGND	8		Analog signal ground. Connect to the thermal pad.
GVDD	9	O	High-side FET gate drive supply. Nominal voltage is 7V. Also should be used as supply for PLIMIT function
PLIMIT	10	I	Power limit level adjust. Connect a resistor divider from GVDD to GND to set power limit. Connect directly to GVDD for no power limit.
RINN	11	I	Negative audio input for right channel. Biased at 3V.
RINP	12	I	Positive audio input for right channel. Biased at 3V.
NC	13		Not connected
PBTL	14	I	Parallel BTL mode switch
PVCCR	15	P	Power supply for right channel H-bridge. Right channel and left channel power supply inputs are connect internally.
PVCCR	16	P	Power supply for right channel H-bridge. Right channel and left channel power supply inputs are connect internally.
BSPR	17	I	Bootstrap I/O for right channel, positive high-side FET.
OUTPR	18	O	Class-D H-bridge positive output for right channel.
PGND	19		Power ground for the H-bridges.
OUTNR	20	O	Class-D H-bridge negative output for right channel.
BSNR	21	I	Bootstrap I/O for right channel, negative high-side FET.
BSNL	22	I	Bootstrap I/O for left channel, negative high-side FET.
OUTNL	23	O	Class-D H-bridge negative output for left channel.
PGND	24		Power ground for the H-bridges.
OUTPL	25	O	Class-D H-bridge positive output for left channel.
BSPL	26	I	Bootstrap I/O for left channel, positive high-side FET.
PVCCL	27	P	Power supply for left channel H-bridge. Right channel and left channel power supply inputs are connect internally.
PVCCL	28	P	Power supply for left channel H-bridge. Right channel and left channel power supply inputs are connect internally.

4. POWER STAGE

The DC voltages required at various parts of the chassis and panel are provided by a main power supply unit. MB62 chassis can operate with IPS60, IPS16, IPS17, PW26, PW27 as main power supply and also with 12V adaptor.

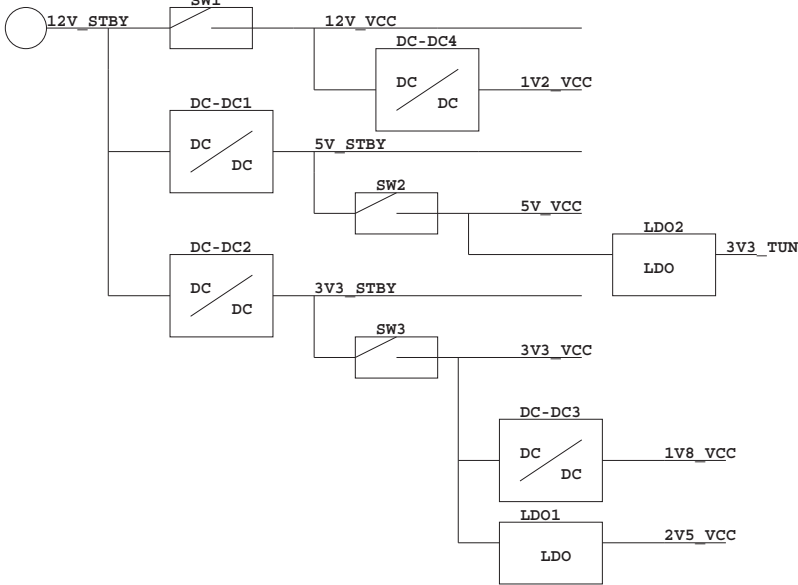
CN706 is used for IPS60, IPS16 and IPS17 and CN1 is used for PW26 and PW27.



JK9 is used for the adapter option and also CN705 inverter socket or DB32 chassis with CN706 is used to supply backlight.

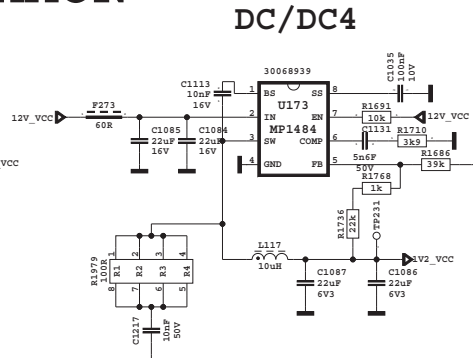
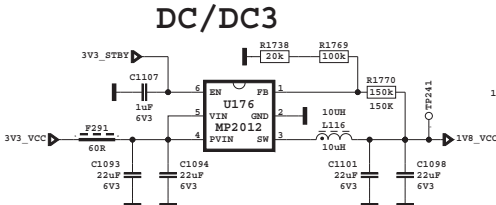
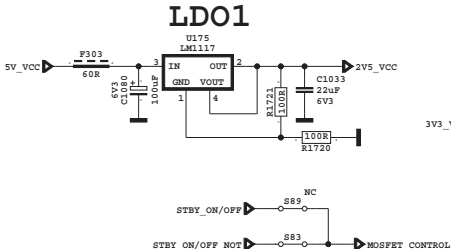
The power supplies generate 18V, 12V, 5V, 3.3V and 12V, 5V, stand by mode DC voltages. Power stage which is on-chassis generates 5V, 3V3 stand by voltage and 12V, 8V, 5V, 3V3, 2.5V, 1.8V and 1.2V supplies for other different parts of the chassis. Chassis block diagram is indicated below.

POWER BLOCK DIAGRAM



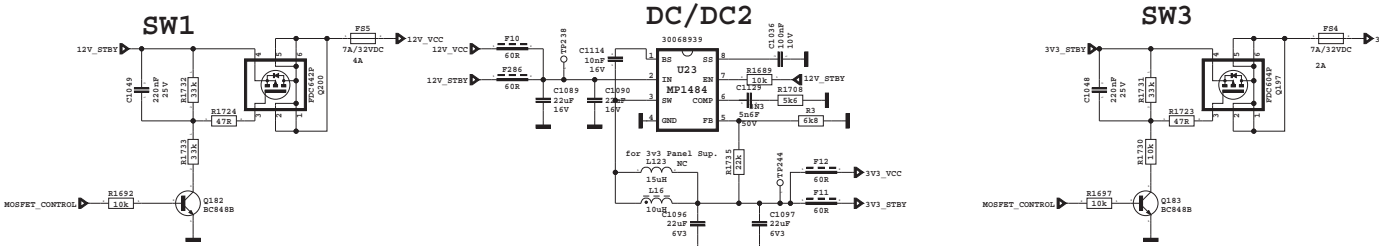
The blocks on power block diagram is using dependent to main supply. For PW26 and PW27 just common blocjs are enough for proper operation

COMMON



For IPS16, IPS17, IPS60 below blocks must work properly

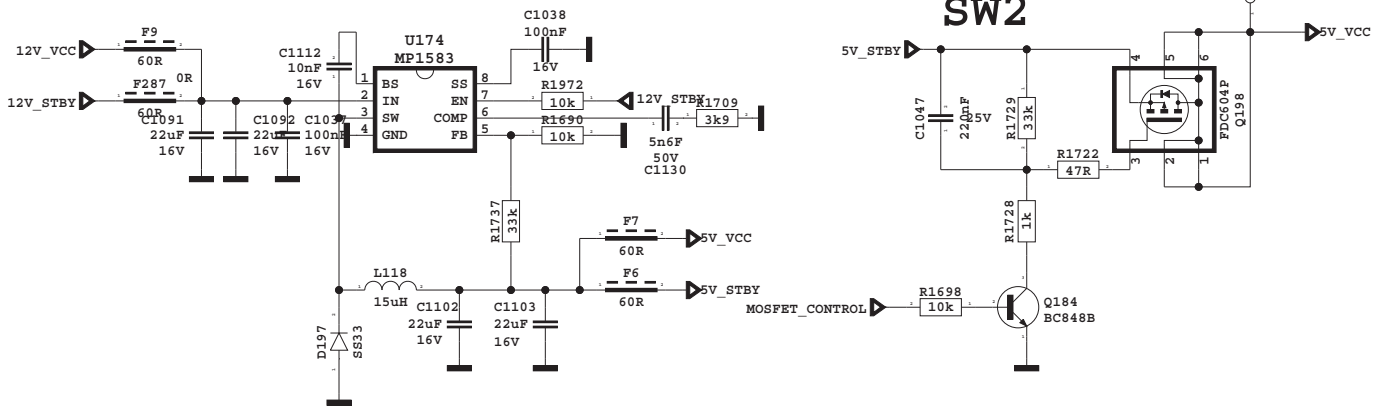
W/ADAPTOR & W/IPS16&17&60&PW25&PW06



For adopter case also below blocks are necessary

W/ADAPTOR

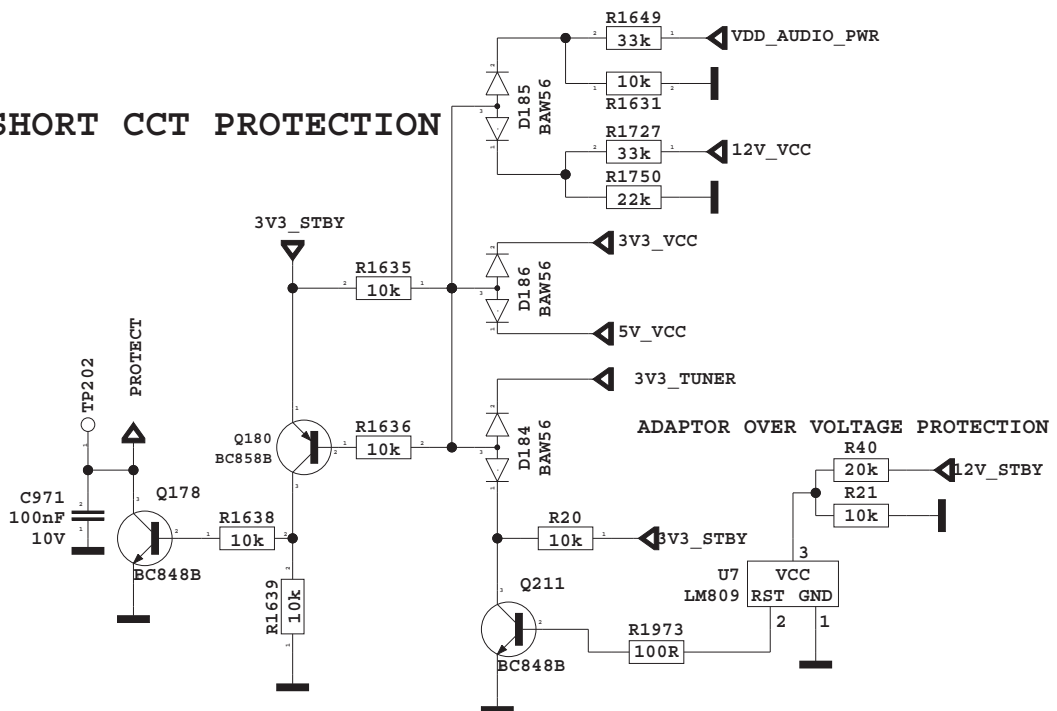
DC/DC1



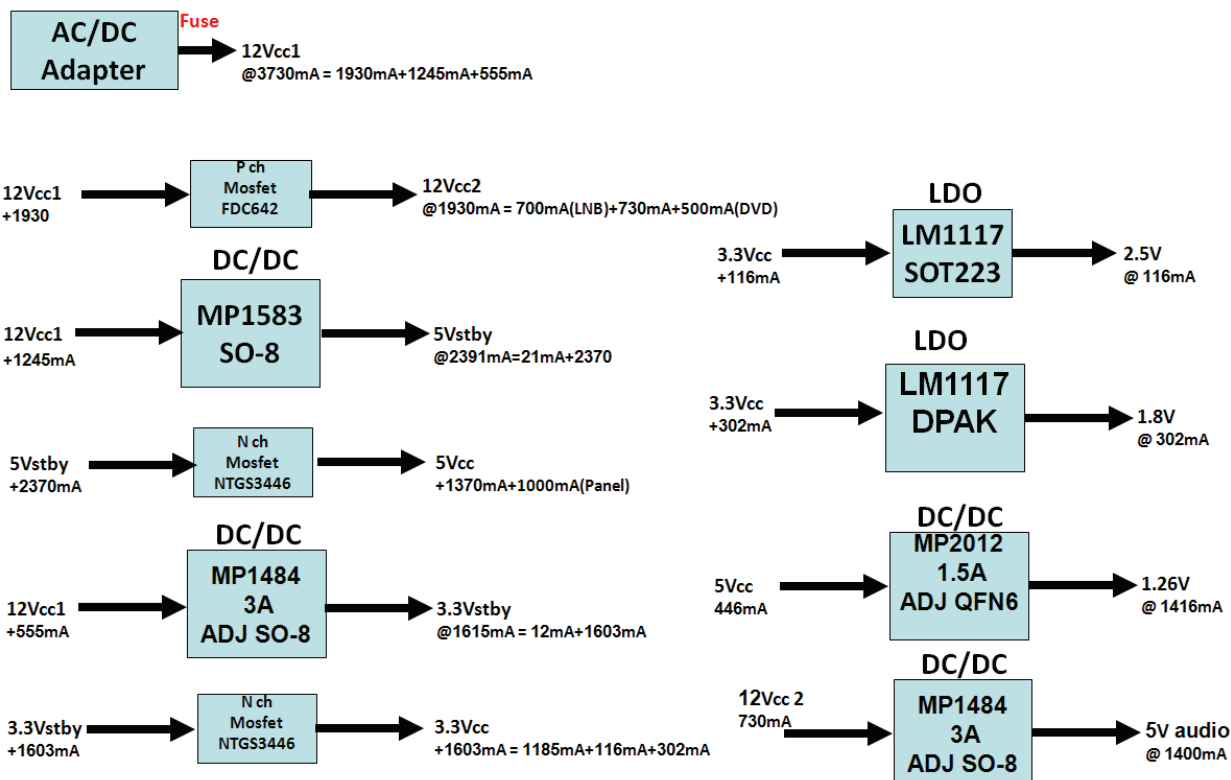
Short CCT Protection Circuit

Short circuit protection is necessary for protecting chassis and main IC against damages when any Vcc supply shorts to ground. Protect pin should be logic high while normal operation. When there is a short circuit protect pin should be logic low. After any short detection, SW forces LEDs on LED card to blink.

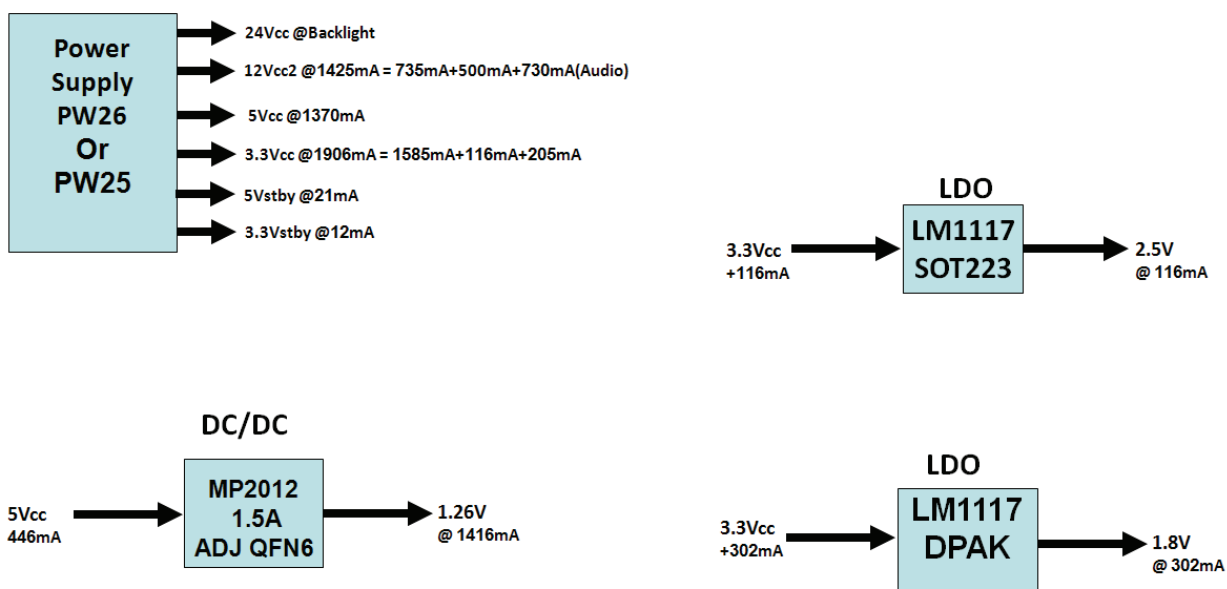
SHORT CCT PROTECTION



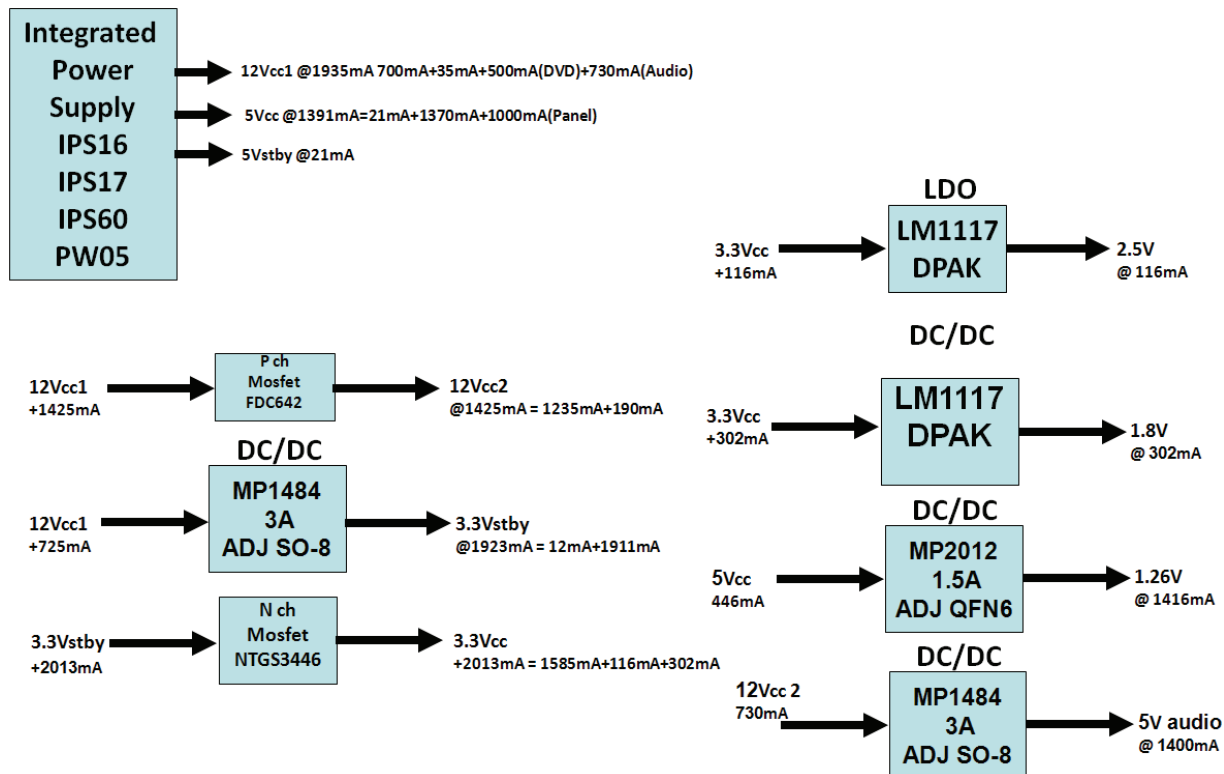
4.1. Power Management



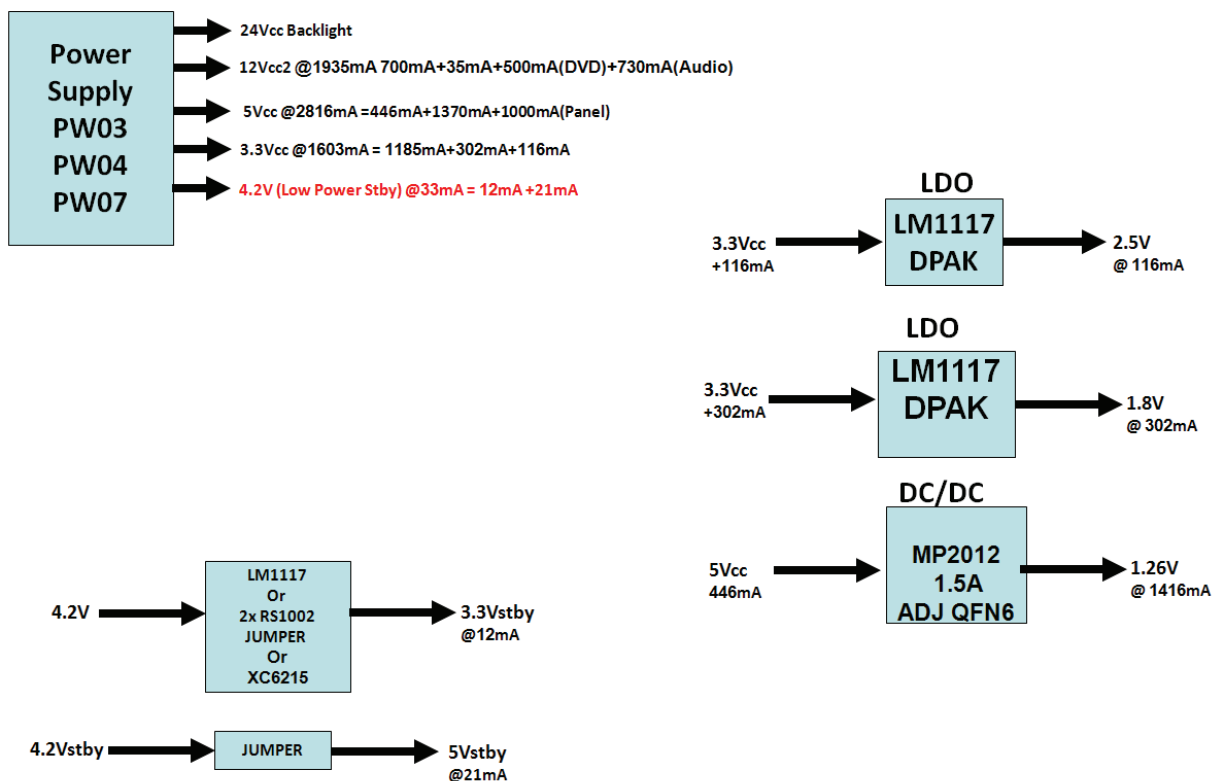
---MB62 Power Management with Adaptor---



---MB62 Power Management with PW25/ PW26---



---MB62 Power Management with IPS16/IPS17/IPS60/PW05---



---MB62 Power Management with PW03/PW04/PW07---

5. MICROCONTROLLER – MSTAR(U5)

5.1. Description

MSD9WB9PT-2 (Main IC) (U5)

The MSD9WB9PT-2 is MStar's most up-to-date system-on-chip solution for flat panel integrated digital television products. Building on the success of MStar's preceding SOC series, the MSD9WB9PT-2 provides most cost-effective solution for DTV application with creative and attractive features exclusively presented by MStar.

The MSD9WB9PT-2 integrates DTV/multi-media all-purpose AV decoder, DVB-T demodulator, VIF demodulator, and Sound/Video processor into a single device. This allows the overall BOM to be reduced significantly making the MSD9WB9PT-2 a very competitive multi-media DTV solution. For ATV users, the MSD9WB9PT-2 provides multi-standard analog TV support with adaptive 3D video decoding and VBI data extraction. The build-in audio decoder is capable of decoding FM, AM, NICAM, A2, BTSC and EIA-J sound standards. The MSD9WB9PT-2 supplies all the necessary A/V inputs and outputs to complete a receiver design including a multi-port HDMI receiver and component video ADC. All input selection multiplexed for video and audio are integrated, including full SCART support with CVBS output. The equipped MStar MACE-5 color engine is the latest masterpiece from

MStar famous color engine series providing excellent video and picture quality in Full-HD and large-scale displaying system.

To meet the increasingly popular energy legislative requirements without the use of additional hardware, the MSD9WB9PT-2 has an ultra low power standby mode during which an embedded MCU can act upon standby events and wake up the system as required.

The MSD9WB9PT-2 is composed of several modules:

High Performance Micro-processor

- Ultra high speed/performance 32-bit RISC CPU
- One full duplex UARTs
- Supports USB and ISP programming
- DMA Engine

Transport Stream De-multiplexer

- Supports parallel and serial TS interface, with or without sync signal
- Supports TS input and output for external CI module
- Maximum TS data rate is 104 Mb/sec for serial or 16 MB/sec for parallel
- 32 general purpose PID filters and section filters for each transport stream de-multiplexer
- Supports additional audio/video/PCR filters
- Supports TS DMA channel for time-shift
- Supports 3DES/DES and AES encryption/decryption

MPEG-2 Video Decoder

- ISO/IEC 13818-2 MPEG-2 video MP@HL
- Automatic frame rate conversion
- Supports resolution up to HDTV (1080i, 720p) and SDTV

MPEG-4 Video Decoder

- ISO/IEC 14496-2 MPEG-4 ASP video decoding
- Supports resolutions up to HDTV (1080p@30fps)
- Supports DivX1 Home Theater & HD profiles **Optional**
- Supports VC-1 **Optional**, FLV video format decoding

Hardware JPEG

- Supports sequential mode, single scan
- Supports both color and grayscale pictures
- Following the file header scan the hardware decoder fully handles the decode process
- Supports programmable Region of Interest (ROI)
- Supports formats: 422/411/420/444/422T
- Supports scaling down ratios: 1/2, 1/4, 1/8
- Supports picture rotation

NTSC/PAL/SECAM Video Decoder

- Supports NTSC-M, NTSC-J, NTSC-4.43, PAL (B, D, G, H, M, N, I, Nc), and SECAM standards
- Automatic standard detection
- Motion adaptive 3D comb filter
- Five configurable CVBS & Y/C S-video inputs
- Supports Teletext, Closed Caption (analog CC 608/ analog CC 708/digital CC 608/digital CC 708), V-chip and SCTE

Multi-Standard TV Sound Processor

- SIF audio decoding
- Supports BTSC/A2/EIA-J demodulation
- Supports NICAM/FM/AM demodulation
- Supports MTS Mode Mono/Stereo/SAP in BTSC/ EIA-J mode
- Supports Mono/Stereo/Dual in A2/NICAM mode
- Built-in audio sampling rate conversion (SRC)
- Audio processing for loudspeaker channel, including volume, balance, mute, tone, EQ, virtual stereo/surround and treble/bass controls
- Advanced sound processing options available, for example: SRS1, BBE2, QSound3, Audyssey4
- Supports digital audio format decoding:
 - ~ MPEG-1, MPEG-2 (Layer I/II), MP3, Dolby Digital (AC-3), AAC-LC
 - ~ Supports **Optional** Dolby Digital Plus, Dolby mPulse, and MS10 multistream decoder, including Dolby Digital Encoder for transcoding streams to Dolby Digital 5.1 (DDCO)
- Supports MPEG Audio, Dolby Digital, Dolby Digital Plus format AD (Audio Description)
- Supports PVR and time-shifting

Audio Interface

- One SIF audio input interface with minimal external saw filters
- Four L/R audio line-inputs
- Two L/R outputs for main speakers and additional line-outputs
- Supports stereo headphone driver

- I2S digital audio input & output
- S/PDIF digital audio output
- HDMI audio channel processing
- Programmable delay for audio/video synchronization

Analog RGB Compliant Input Port

- Three analog ports support up to 1080P
- Supports PC RGB input up to SXGA@75Hz
- Supports HDTV RGB/YPbPr/YCbCr
- Supports Composite Sync and SOG Sync-on-Green
- Automatic color calibration
- AV-link support

Analogue RGB Auto-Configuration & Detection

- Auto input signal format and mode detection
- Auto-tuning function including phasing, positioning, offset, gain, and jitter detection
- Sync Detection for H/V Sync

DVI/HDCP/HDMI Compliant Input Port

- Two HDMI/DVI Input ports
- HDMI 1.3 Compliant
- HDCP 1.1 Compliant
- 225MHz @ 1080P 60Hz input with 12-bit Deep-color support
- CEC support
- Single link DVI 1.0 compliant
- Robust receiver with excellent long-cable support

MStar Advanced Color Engine (MStarACE-5)

- 10/12-bit internal data processing
- Fully programmable multi-function scaling engine
 - ~ Nonlinear video scaling supports various modes including Panorama
 - ~ Supports dynamic scaling for VC-1
- High-Quality DTV video processor
 - ~ 3D motion video deinterlacer with motion object stabilizer
 - ~ Edge-oriented deinterlacer with edge and artifact smoother
 - ~ Automatic 3:2/2:2/M:N pull-down detection and recovery
 - ~ 3D multi-purpose noise reduction for DTV or lousy air/cable input
 - ~ MPEG artifact removal including de-blocking and mosquito noise reduction
 - ~ Arbitrary frame rate conversion
- MStar Professional Picture Enhancement:
 - ~ Dynamic brilliant and fresh color
 - ~ Dynamic Blue Stretch
 - ~ Intensified contrast and details
 - ~ Dynamic Vivid Skin
 - ~ Dynamic sharpened Luma/Chroma edges
 - ~ Global and local dynamic depth of field perception
 - ~ Accurate and independent color control
 - ~ Supports sRGB and xvYCC color processing
 - ~ Supports HDMI 1.3 deep color format
- Programmable 12-bit RGB gamma CLUT

Output Interface

- Single/dual link 8/10-bit LVDS output
- Supports panel resolution up to Full-HD (1920x1080) @ 60Hz
- Supports TH/TI format

- Supports dithering options to 6/8-bit output
- Spread spectrum output for EMI suppression

CVBS Video Encoder

- Supports all NTSC/PAL TV Standard
- Stand-alone scaling engine
- Programmable Hue, Contrast, Brightness
- Supports TTX/CC/WSS output

CVBS Video Output

- Allows CVBS output of all source inputs

2D Graphics Engine

- Hardware Graphics Engine for responsive
- Interactive applications
- Supports point draw, line draw, rectangle draw/fill, text draw and trapezoid draw
- BitBlt, stretch BitBlt, trapezoid BitBlt, mirror BitBlt and rotate BitBlt
- Raster Operation (ROP)
- Support Porter-Duff

VIF Demodulator

- Compliant with NTSC M/N, PAL B, G/H, I, D/K,
- SECAM L/L' standards
- Audio/Video dual-path processor
- Stepped-gain PGA with 25 dB tuning range and 1 dB tuning resolution
- Maximum IF gain of 37 dB
- Programmable TOP to accommodate different tuner gain and SAW filter insertion loss to optimize noise and linearity performance
- Multi-standard processing with single SAW
- Supports silicon tuner low IF output architecture

DVB-T Demodulator

- Digital carrier frequency offset correction: $\pm 500\text{KHz}$
- Optimised for SFN channels with pre/post-cursive echoes inside/outside the guard
- Acquisition range $\pm 857\text{kHz}$ includes up to $3 \times \pm 1/6\text{ MHz}$ transmitter offset
- Meets Nordig Unified 1.0.3, D-Book 5.0, EICTA E-Book/C-Book test requirement
- $\pm 400\text{kHz}$ internal carrier offset recovery range
- 6.8 usecs echo cancellation at 7 Msym/s
- Supports IF, low-IF, zero-IF inputs
- Ultra-fast automatic blind UHF/VHF channel scan (constellations and symbol rate)

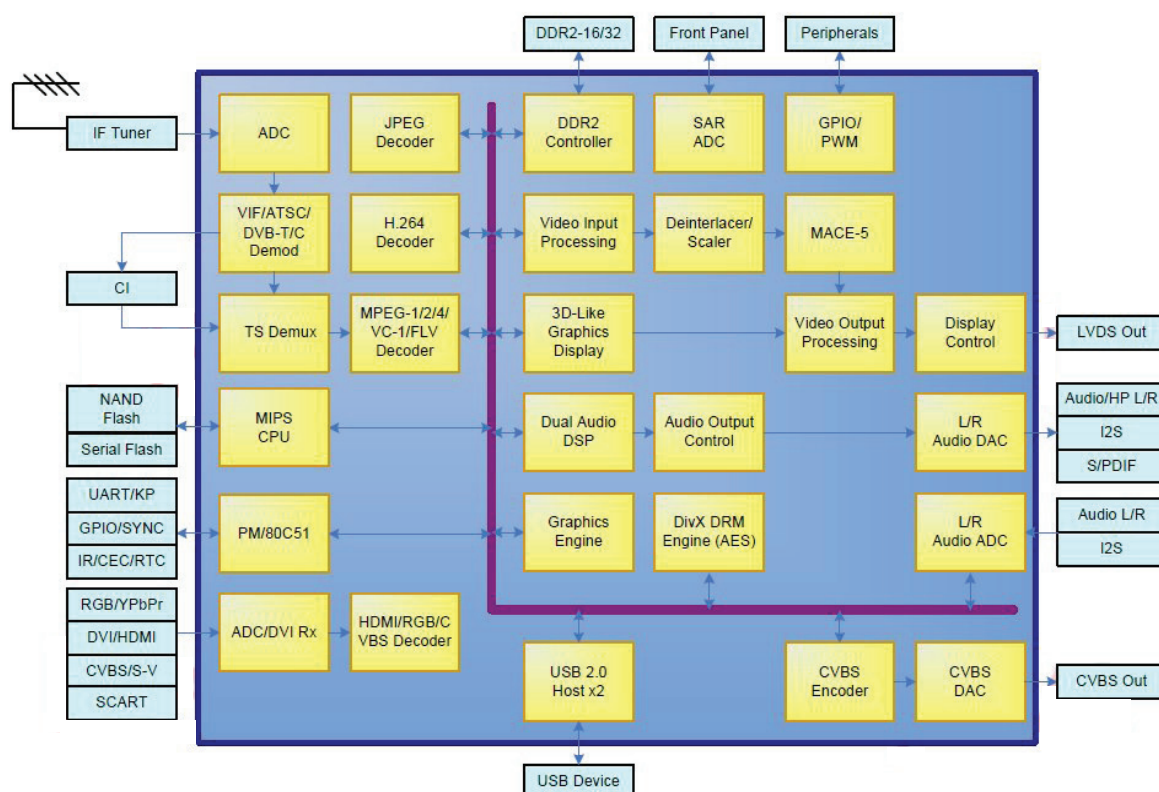
Connectivity

- Two USB 2.0 host ports
- USB architecture designed for efficient support of external storage devices in conjunction with off air broadcasting

Miscellaneous

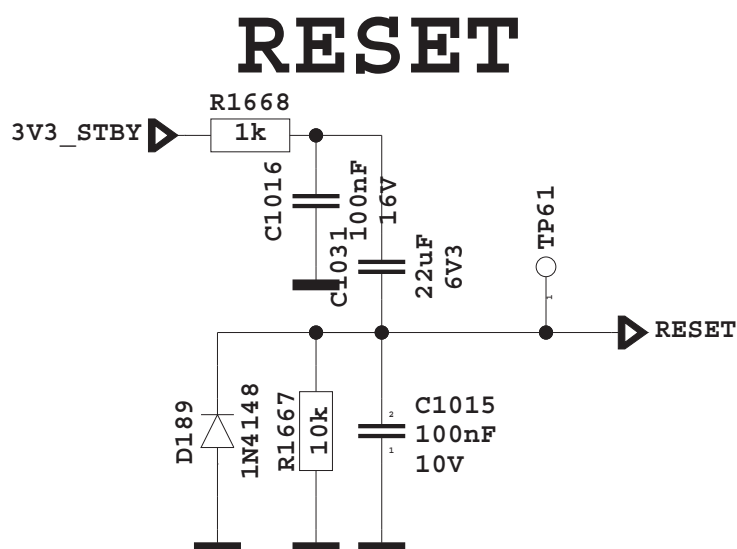
- DRAM interface supporting one 16-bit DDR2 @1066MHz
- Supports PVR
- Supports Common Interface for conditional access support
- Bootable SPI interface with serial flash support
- Parallel interface for external NAND flash support
- Power control module with ultra low power MCU available in standby mode
- 380-ball LFBGA package
- Operating Voltages: 1.26V (core), 1.8V (DDR2), 2.5V and 3.3V (I/O and analog)

5.2. MSTAR Block Diagram



5.3. Reset Circuit

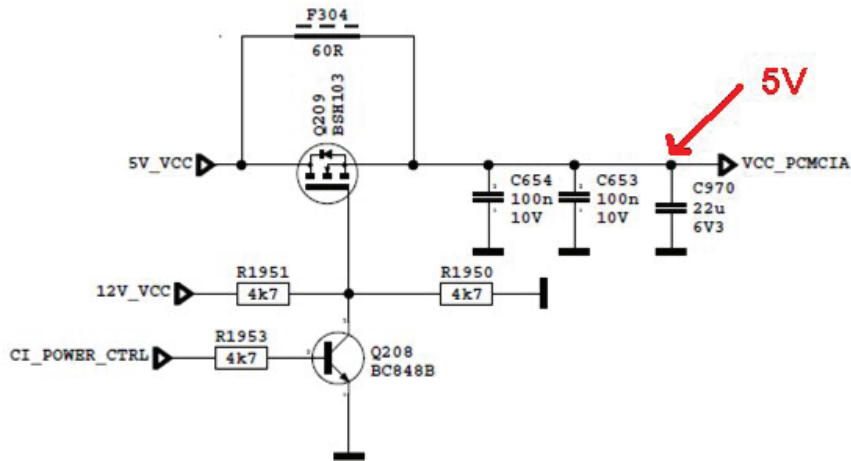
Reset circuit using for initializing main Mstar IC. Reset condition is high and normal working condition is low for RESET pin.



6. CI INTERFACE

CI Interface Power Switch:

It is used for CI module supply, when Module is inserted (it means CI detect is low) This circuit is opened or closed by CI_POWER_CTRL port of main uController

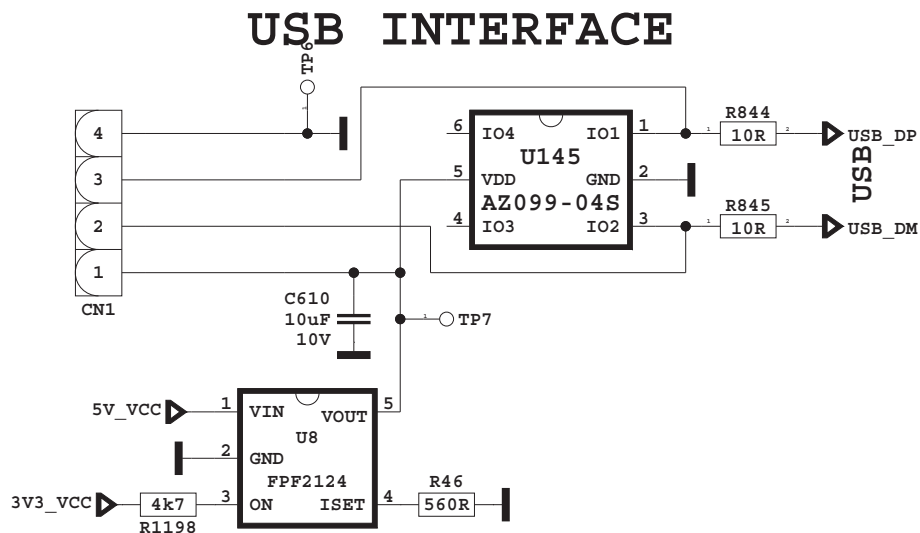


7. USB INTERFACE

Main Concept IC has integrated 2 USB 2.0 interface. One of them is used for ethernet function, the other one is used for USB connectivity for last user. Last user can play video, picture and audio files. Also digital channels can be record to external storage device by this interface. All SW files can be updated with interface.

USB circuit has 3 main parts

- Integrated USB 2.0 Host interface of D3K (U5)
- Protection IC (U145)
- Over Current Protection IC (U8)



8. DDR2 SDRAM K4T1G164QF (U155)

8.1 General Description

The 1Gb DDR2 SDRAM is organized as a 16Mbit x 8 I/Os x 8 banks, 8Mbit x 16 I/Os x 8 banks device. This synchronous device achieves high speed double-data-rate transfer rates of up to 1066Mb/sec/pin (DDR2-1066) for general applications. The chip is designed to comply with the following key DDR2 SDRAM features such as posted CAS with additive latency, write latency = read latency - 1, Off-Chip Driver(OCD) impedance adjustment and On Die Termination. All of the control and address inputs are synchronized with a pair of externally supplied differential clocks. Inputs are latched at the crosspoint of differential clocks (CK rising and CK falling). All I/Os are synchronized with a pair of bidirectional strobes (DQS and DQS) in a source synchronous fashion. The address bus is used to convey row, column, and bank address information in a RAS/CAS multiplexing style. For example, 1Gb(x8) device receive 14/10/3 addressing. The 1Gb DDR2 device operates with a single $1.8V \pm 0.1V$ power supply and $1.8V \pm 0.1V$ VDDQ. The 1Gb DDR2 device is available in 60ball FBGA(x8) and 84ball FBGA(x16).

8.2 Features

- JEDEC standard VDD = $1.8V \pm 0.1V$ Power Supply
- VDDQ = $1.8V \pm 0.1V$
- 533MHz fCK for 1066Mb/sec/pin
- 8 Banks
- Posted CAS
- Programmable CAS Latency: 4, 5, 6, 7
- Programmable Additive Latency: 3, 4, 5, 6
- Write Latency(WL) = Read Latency(RL) -1
- Burst Length: 4, 8(Interleave/nibble sequential)
- Programmable Sequential / Interleave Burst Mode
- Bi-directional Differential Data-Strobe (Single-ended data-strobe is an optional feature)
- Off-Chip Driver(OCD) Impedance Adjustment
- On Die Termination
- Special Function Support - PASR(Partial Array Self Refresh) - 50ohm ODT - High Temperature Self-Refresh rate enable
- Average Refresh Period 7.8us at lower than TCASE 85°C, 3.9us at 85°C < TCASE < 95°C
- All of products are Lead-free, Halogen-free, and RoHS compliant

8.3 Pinning

	1	2	3	4	5	6	7	8	9
A	V _{DD}	NC	V _{SS}						
B	DQ14	V _{SSQ}	UDM						
C	V _{DDQ}	DQ9	V _{DDQ}						
D	DQ12	V _{SSQ}	DQ11						
E	V _{DD}	NC	V _{SS}						
F	DQ6	V _{SSQ}	LDM						
G	V _{DDQ}	DQ1	V _{DDQ}						
H	DQ4	V _{SSQ}	DQ3						
J	V _{DDL}	V _{REF}	V _{SS}						
K		CKE	WE						
L	BA2	BA0	BA1						
M		A10/AP	A1						
N	V _{SS}	A3	A5						
P		A7	A9						
R	V _{DD}	A12	NC						

V _{SSQ}	UDQS	V _{DDQ}
UDQS	V _{SSQ}	DQ15
V _{DDQ}	DQ8	V _{DDQ}
DQ10	V _{SSQ}	DQ13
V _{SSQ}	LDQS	V _{DDQ}
LDQS	V _{SSQ}	DQ7
V _{DDQ}	DQ0	V _{DDQ}
DQ2	V _{SSQ}	DQ5
V _{SSDL}	CK	V _{DD}
RAS	CK	ODT
CAS	CS	
A2	A0	V _{DD}
A6	A4	
A11	A8	V _{SS}
NC	NC	

Ball Locations (x16)

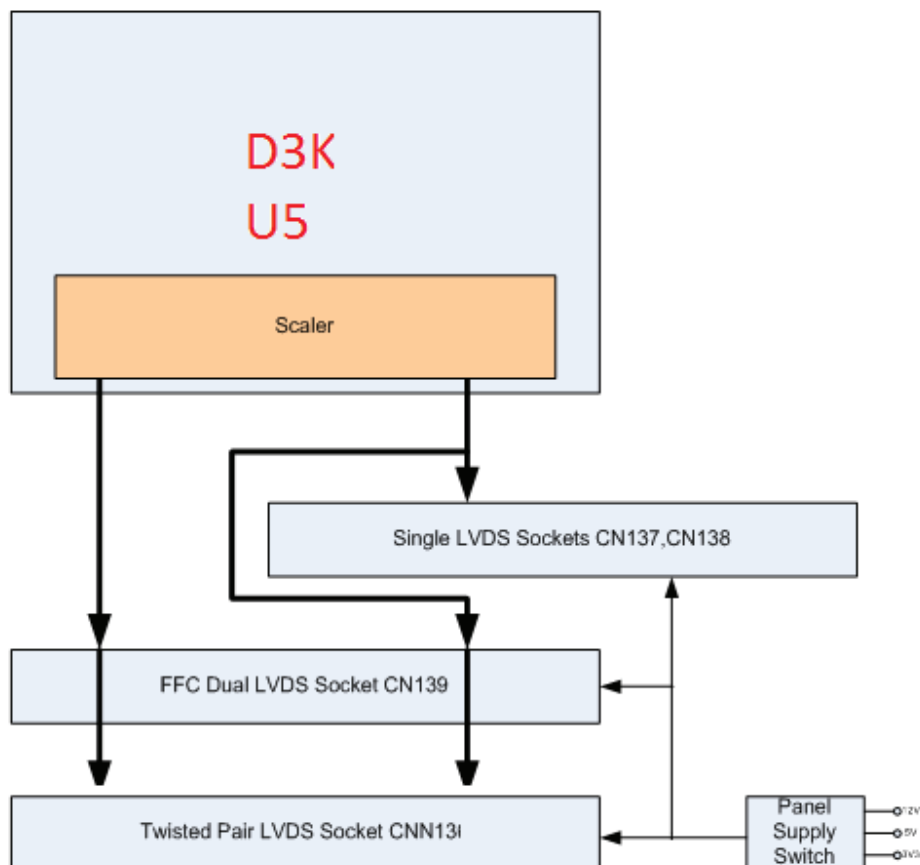
- Populated ball
- + Ball not populated

Top view
(See the balls through package)

	1	2	3	4	5	6	7	8	9
A	●	●	●	+	+	+	●	●	●
B	●	●	●	+	+	+	●	●	●
C	●	●	●	+	+	+	●	●	●
D	●	●	●	+	+	+	●	●	●
E	●	●	●	+	+	+	●	●	●
F	●	●	●	+	+	+	●	●	●
G	●	●	●	+	+	+	●	●	●
H	●	●	●	+	+	+	●	●	●
J	●	●	●	+	+	+	●	●	●
K	+	●	●	+	+	+	●	●	●
L	●	●	●	+	+	+	●	●	+
M	+	●	●	+	+	+	●	●	●
N	●	●	●	+	+	+	●	●	+
P	+	●	●	+	+	+	●	●	●
R	●	●	●	+	+	+	●	●	+

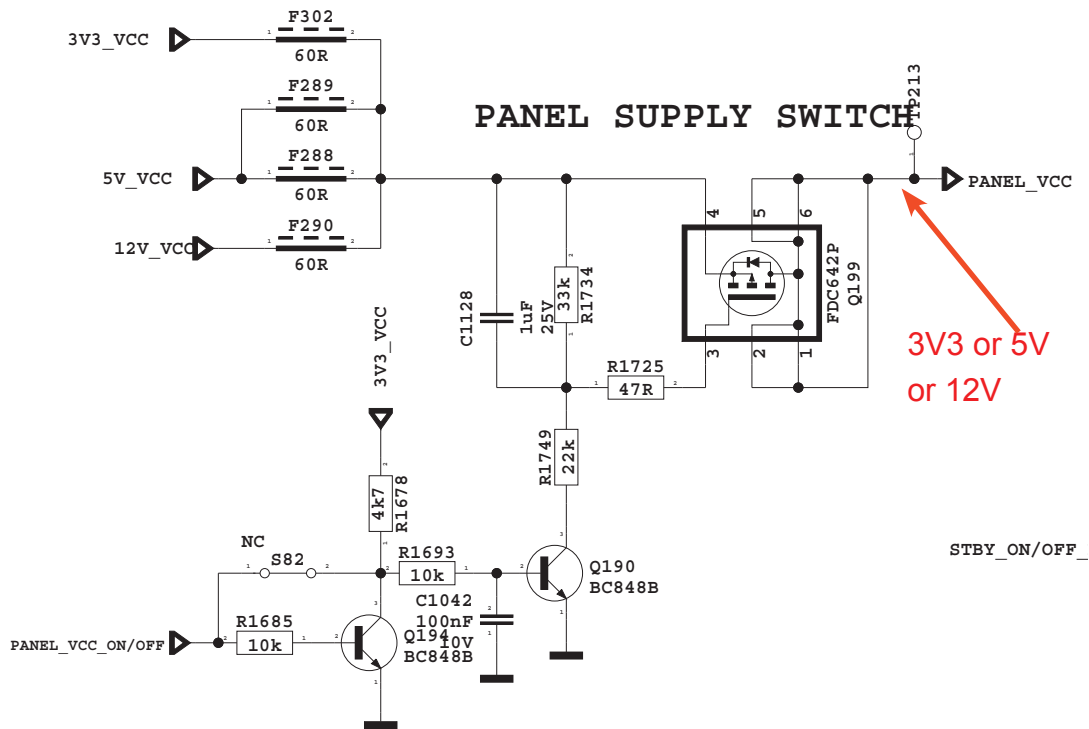
9. SCALER AND LVDS SOCKETS

9.1. LVDS sockets Block Diagram



9.2. Panel Supply Switch Circuit

This switch is used to open and close panel supply of TCON. It is controlled by port of main ucontroller. Also with this circuit panel sequency could be adjusted correctly. 3 panel suplys are connected to this circuit. All of them are optional according to panels.



10. SPI FLASH MEMORY - MX25L1005 (U158)

10.1. General Description

MX25L1005 is a CMOS 1,048,576 bit serial Flash memory, which is configured as 131,072 x 8 internally. The MX25L1005 feature a serial peripheral interface and software protocol allowing operation on a simple 3-wire bus. The three bus signals are a clock input (SCLK), a serial data input (SI), and a serial data output (SO). SPI access to the device is enabled by CS# input. The MX25L1005 provide sequential read operation on whole chip. After program/erase command is issued, auto program/ erase algorithms which program/ erase and verify the specified page or sector/block locations will be executed. Program command is executed on page (256 bytes) basis, and erase command is executes on chip or sector(4K-bytes) or block(64K-bytes). To provide user with ease of interface, a status register is included to indicate the status of the chip. The status read command can be issued to detect completion status of a program or erase operation via WIP bit. When the device is not in operation and CS# is high, it is put in standby mode and draws less than 10uA DC current. The MX25L1005 utilize MXIC's proprietary memory cell, which reliably stores memory contents even after 100,000 program and erase cycles.

10.2. Features

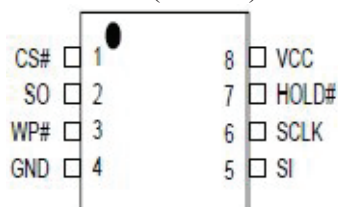
- Serial Peripheral Interface (SPI) compatible -- Mode 0 and Mode 3
- 1,048,576 x 1 bit structure
- 32 Equal Sectors with 4K byte each, Any Sector can be erased individually
- 2 Equal Blocks with 64K byte each, Any Block can be erased individually
- Single Power Supply Operation
- 2.7 to 3.6 volt for read, erase, and program operations
- Latch-up protected to 100mA from -1V to Vcc +1V
- Low Vcc write inhibit is from 1.5V to 2.5V

10.3. Absolute Maximum Ratings

RATING	VALUE
Ambient Operating Temperature	0°C to 70°C
Storage Temperature	-55°C to 125°C
Applied Input Voltage	-0.5v to 4.6v
Applied Output Voltage	-0.5v to 4.6v
VCC to Ground Potential	-0.5v to 4.6v

10.4. Pinning

8-PIN SOP (150mil)



SYMBOL	DESCRIPTION
CS#	Chip select
SI	Serial Data Input
SO	Serial Data Output
SCLK	Clock Input
HOLD#	Hold, to pause the device without deselecting the device
VCC	+3.3v Power Supply
GND	Ground

11. NAND FLASH MEMORY – NAND512XXA2C (U162)

11.1. General Description

The NAND flash 528-byte/ 264-word page is a family of non-volatile flash memories that uses the single level cell (SLC) NAND technology. It is referred to as the small page family.

The NAND512R3A2C, NAND512R4A2C, and NAND512W3A2C have a density of 512 Mbits and operate with either a 1.8 V or 3 V voltage supply. The size of a page is either 528 bytes (512 + 16 spare) or 264 words (256 + 8 spare) depending on whether the device has a x8 or x16 bus width.

The address lines are multiplexed with the Data Input/Output signals on a multiplexed x8 or x16 input/output bus. This interface reduces the pin count and makes it possible to migrate to other densities without changing the footprint.

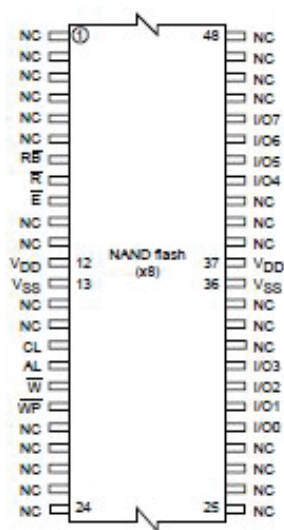
To extend the lifetime of NAND flash devices it is strongly recommended to implement an error correction code (ECC). The use of ECC correction allows to achieve up to 100,000 program/erase cycles for each block. A write protect pin is available to give a hardware protection against program and erase operations.

11.2. Features

- High density NAND flash memories
 - 512-Mbit memory array
 - Cost effective solutions for mass storage applications
- NAND interface
 - x8 or x16 bus width
 - Multiplexed address/ data
- Supply voltage: 1.8 V, 3 V
- Page size
 - x8 device: (512 + 16 spare) bytes
 - x16 device: (256 + 8 spare) words
- Block size
 - x8 device: (16K + 512 spare) bytes
 - x16 device: (8K + 256 spare) words
- Page read/program
 - Random access: 12 μ s (3 V)/15 μ s (1.8 V) (max)
 - Sequential access: 30 ns (3 V)/50 ns (1.8 V) (min)
 - Page program time: 200 μ s (typ)
- Copy back program mode
- Fast block erase: 2 ms (typ)

- Status register
- Electronic signature
- Chip Enable 'don't care'
- Security features
 - OTP area
- Serial number (unique ID) option
- Hardware data protection
 - Program/erase locked during power transitions
- Data integrity
 - 100,000 program/erase cycles (with ECC)
 - 10 years data retention
- RoHS compliant packages
- Development tools
 - Error correction code models
 - Bad blocks management and wear leveling algorithms

11.3. Pinning



12. LM1117(U175, U180, U181)

12.1. General Description

The LM1117 is a series of low dropout voltage regulators with a dropout of 1.2V at 800mA of load current. It has the same pin-out as National Semiconductor’s industry standard LM317. The LM1117 is available in an adjustable version, which can set the output voltage from 1.25V to 13.8V with only two external resistors. In addition, it is also available in five fixed voltages, 1.8V, 2.5V, 2.85V, 3.3V, and 5V. The LM1117 offers current limiting and thermal shutdown. Its circuit includes a zener trimmed bandgap reference to as-sure output voltage accuracy to within ±1%. The LM1117 series is available in SOT- 223, TO-220, and TO-252 D-PAK packages. A minimum of 10µF tantalum capacitor is required at the output to improve the transient response and stability.

12.2. Features

- Available in 1.8V, 2.5V, 2.85V, 3.3V, 5V, and Adjustable Versions
- Space Saving SOT-223 Package
- Current Limiting and Thermal Protection
- Output Current 800mA
- Line Regulation 0.2% (Max)
- Load Regulation 0.4% (Max)
- Temperature Range
- LM1117 0°C to 125°C
- LM1117I -40°C to 125°C

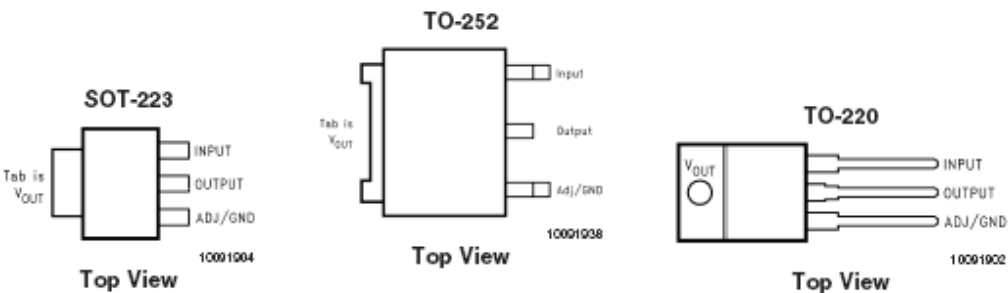
12.3. Applications

- 2.85V Model for SCSI-2 Active Termination
- Post Regulator for Switching DC/DC Converter
- High Efficiency Linear Regulators 15
- 32” TFT TV Service Manual 10/01/2005
- Battery Charger
- Battery Powered Instrumentation

12.4. Absolute Maximum Ratings

CHARACTERISTIC	SYMEOL	MIN.	MAX.	UNIT
DC Input Voltage	V_{IN}		7	V
Lead Temperature (Soldering, 5 Seconds)	T_{SOL}		260	°C
Storage Temperature Range	T_{STG}	-85	150	°C
Operating Junction Temperature Range	T_{OPR}	0	125	°C

12.5. Pinning



13. MP2012 (U176)

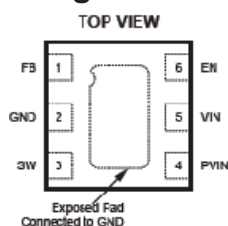
13.1. General Description

The MP2012 is a fully integrated, internally compensated 1.2MHz fixed frequency PWM step-down converter. It is ideal for powering portable equipment that runs from a single cell Lithium-Ion (Li+) Battery, with an input range from 2.7V to 6V. The MP2012 can provide up to 1.5A of load current with output voltage as low as 0.8V. It can also operate at 100% duty cycle for low dropout applications. With peak current mode control and internal compensation, the MP2012 is stable with ceramic capacitors and small inductors. Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown.

13.2. Features

- 2.7-6V Input Operation Range
- Output Adjustable from 0.8V to VIN
- 1 μ A Max Shutdown Current.
- Up to 95% Efficiency
- 100% Duty Cycle for Low Dropout
- Applications
- 1.2MHz Fixed Switching Frequency
- Stable with Low ESR Output Ceramic
- Capacitors
- Thermal Shutdown
- Cycle-by-Cycle Over Current Protection
- Short Circuit Protection
- Available in 6-pin 3x3mm QFN

13.3. Pinning



Pin #	Name	Description
1	FB	Feedback input. An external resistor divider from the output to GND, tapped to the FB pin sets the output voltage.
2	GND, Exposed Pad	Ground pin. Connect exposed pad to ground plane for proper thermal performance.
3	SW	Switch node to the inductor.
4	PVIN	Input supply pin for power FET.
5	VIN	Input Supply pin for controller. Put small decoupling ceramic near this pin.
6	EN	Enable input, "High" enables MP2012. EN is pulled to GND with 1Meg internal resistor.

14. RTA8283A (U23, U173)

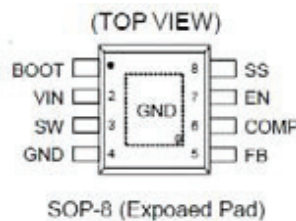
14.1. General Description

The RT8283A is a high-efficiency, monolithic synchronous step-down DC/DC converter that can deliver up to 3A output current from a 4.5V to 23V input supply. The RT8283A's current mode architecture and external compensation allow the transient response to be optimized over a wide range of loads and output capacitors. Cycle-by-cycle current limit provides protection against shorted outputs and soft-start eliminates input current surge during start-up. The RT8283A also provides output under voltage protection and thermal shutdown protection. The low current ($<3\mu\text{A}$) shutdown mode provides output disconnect, enabling easy power management in battery-powered systems. The RT8283A is available in a SOP-8 package.

14.2. Features

- $\pm 1.5\%$ High Accuracy Feedback Voltage
- Integrated N-MOSFET Switches
- Current Mode Control
- Fixed Frequency Operation : 340kHz
- Output Adjustable from 0.8V to 20V
- Up to 95% Efficiency
- Thermal Shutdown Protection

14.3. Pinning



Pin No.	Pin Name	Description
1	BOOT	Bootstrap for high-side gate driver. Connect a 0.1 μF or greater ceramic capacitor from BOOT to SW pins.
2	VIN	Input Supply 4.5V to 23V. Must bypass with a suitably large ceramic capacitor.
3	SW	Phase Node--Connect to external L-C filter..
4, 9 (Exposed Pad)	GND	Ground.
5	FB	Feedback Input pin is connected to the converter output. It is used to set the output of the converter to regulate to the desired value via an internal res divider. For an adjustable output, an external res divider is connected to this pin.
6	COMP	Compensation Node. COMP is used to compensate the regulation Control loop. Connect a series RC network from COMP to GND. In some cases, an additional capacitor from COMP to GND is required.
7	EN	Enable Input Pin. Logic high enables the converter; a logic low forces the RT8253A into shutdown mode. Attach this pin to VIN with a 100k Ω pull up resistor for automatic startup.
8	SS	Soft-Start Control Input. SS controls the soft-start period. Connect a capacitor from SS to GND to set the soft-start period. A 0.1 μF capacitor sets the soft-start period to 13.5ms.

15. MP1583 (U174)

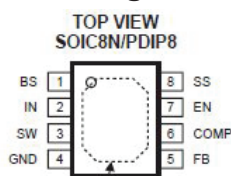
15.1. General Description

The MP1583 is a step-down regulator with a built-in internal Power MOSFET. It achieves 3A of continuous output current over a wide input supply range with excellent load and line regulation. Current mode operation provides fast transient response and eases loop stabilization. Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown. An adjustable soft-start reduces the stress on the input source at start-up. The MP1583 requires a minimum number of external components, providing a compact solution.

15.2. Features

- 3A Output Current
- Programmable Soft-Start
- 100mΩ Internal Power MOSFET Switch
- Stable with Low ESR Output Ceramic Capacitors
- Up to 95% Efficiency
- 20μA Shutdown Mode
- Fixed 385KHz Frequency
- Thermal Shutdown
- Cycle-by-Cycle Over Current Protection
- Wide 4.75V to 23V Operating Input Range
- Output Adjustable from 1.22V to 21V
- Under-Voltage Lockout

15.3. Pinning



Pin No.	Pin Name	Description
1	BOOT	High-Side Gate Drive Bootstrap Input. BS supplies the drive for the high-side N-Channel MOSFET switch.
2	IN	Power Input. Drive IN with a 4.75V to 23V power source.
3	SW	Power Switching Out is the switching node that supplies power to the output
4	GND	Ground.
5	FB	Feedback Input. FB senses the output voltage and regulates it. Drive FB with a resistive voltage divider from the output voltage. FB threshold is 1.222V.
6	COMP	Compensation Node is used to compensate the regulation control loop.
7	EN	Enable/UVLO. A voltage greater than 2.71V enables operation. For complete low current shutdown the EN pin voltage needs to be at less than 900mV. When the voltage on EN exceeds 1.2V, the internal regulator will be enabled and the soft-start capacitor will begin to charge. The MP1583 will start switching after the EN pin voltage reaches 2.71V.
8	SS	Soft-Start Control Input. SS controls the soft-start period.

16. FDC642

16.1. General Description

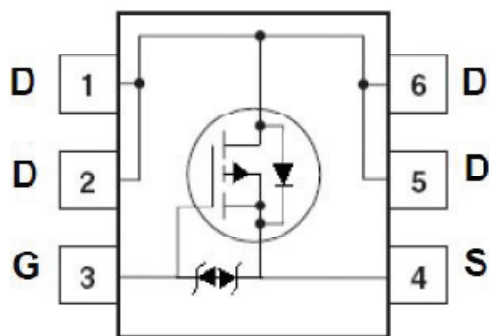
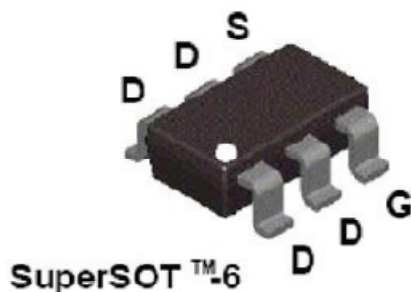
This P-Channel 2.5V specified MOSFET is produced using Fairchild's advanced PowerTrench® process that has been especially tailored to minimize on-state resistance and yet maintain low gate charge for superior switching performance.

These devices have been designed to offer exceptional power dissipation in a very small footprint for applications where the larger packages are impractical.

16.2. Features

- Max $r_{DS(on)}$ = 65 m Ω at V_{GS} = -4.5 V, I_D = -4.0 A
- Max $r_{DS(on)}$ = 100 m Ω at V_{GS} = -2.5 V, I_D = -3.2 A
- Fast switching speed
- Low gate charge (11nC typical)
- High performance trench technology for extremely low $r_{DS(on)}$
- SuperSOT™-6 package: small footprint (72% smaller than standard SO-8); low profile (1 mm thick)
- Termination is Lead-free and RoHS Compliant

16.3. Pinning



17. FDC604P

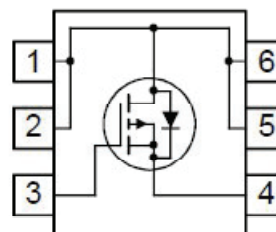
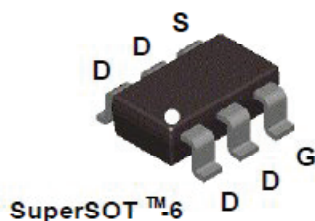
17.1. General Description

This P-Channel 1.8V specified MOSFET uses Fairchild's low voltage PowerTrench process. It has been optimized for battery power management applications.

17.2. Features

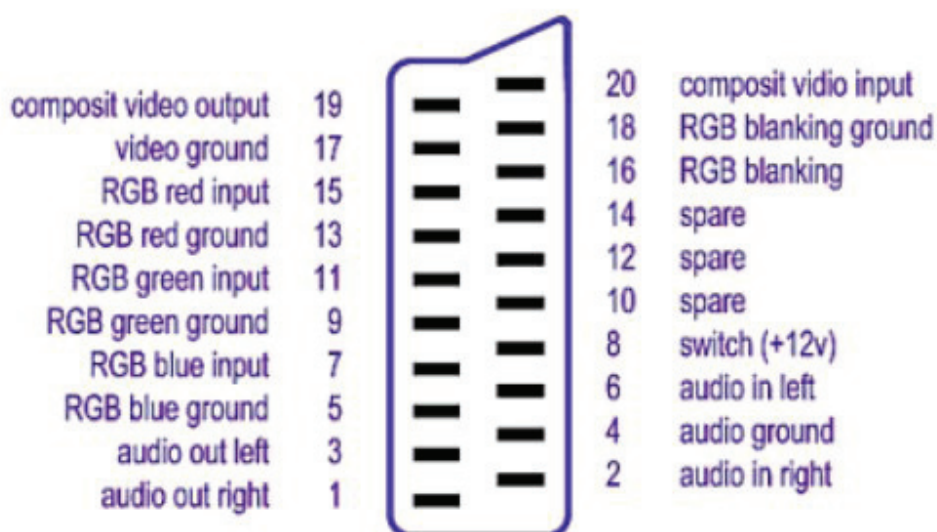
- -5.5 A , -20 V . $R_{DS(ON)} = 33\text{ m}\Omega$ @ $V_{GS} = -4.5\text{ V}$
- $R_{DS(ON)} = 43\text{ m}\Omega$ @ $V_{GS} = -2.5\text{ V}$
- $R_{DS(ON)} = 60\text{ m}\Omega$ @ $V_{GS} = -1.8\text{ V}$
- Fast switching speed.
- High performance trench technology for extremely low $R_{DS(ON)}(S)$

17.3. Pinning

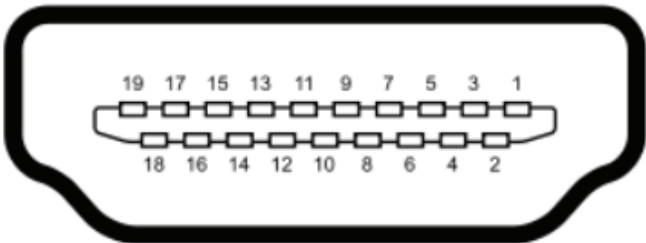


18. CONNECTORS

18.1. SCART (SC1)

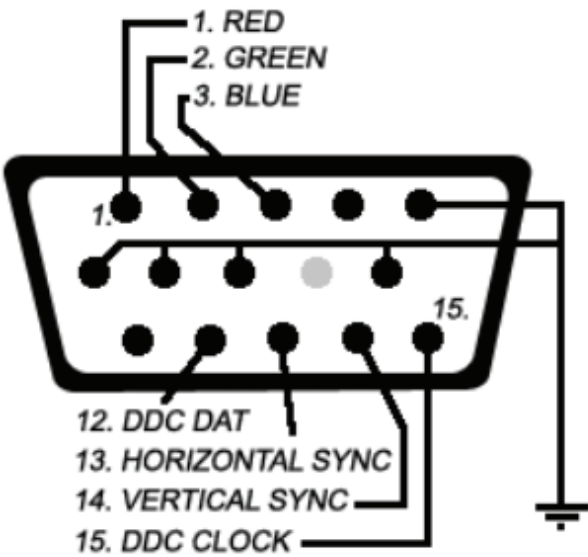


18.2. HDMI (CN707,CN708)



Pin Number	Signal Name	Pin Number	Signal Name
1	TMDS Data 2+	20	SHELL
2	TMDS Data 2 Shield	19	Hot Plug Detect
3	TMDS Data 2-	18	+5V Power
4	TMDS Data 1+	17	Ground
5	TMDS Data 1 Shield	16	DDC Data
6	TMDS Data 1-	15	DDC Clock
7	TMDS Data 0+	14	No Connect
8	TMDS Data 0 Shield	13	CEC
9	TMDS Data 0-	12	TMDS Clock-
10	TMDS Clock+	11	TMDS Clock Shield

18.3. VGA (CN711)

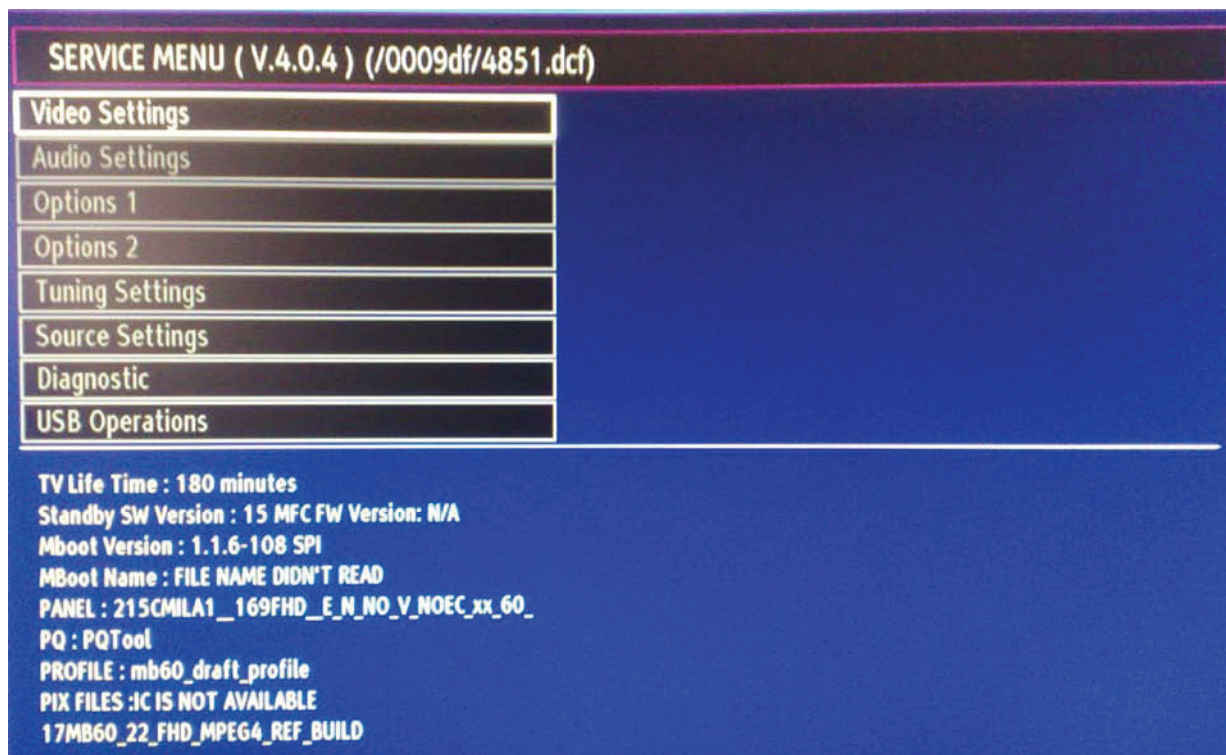


SERVICE MENU SETTINGS

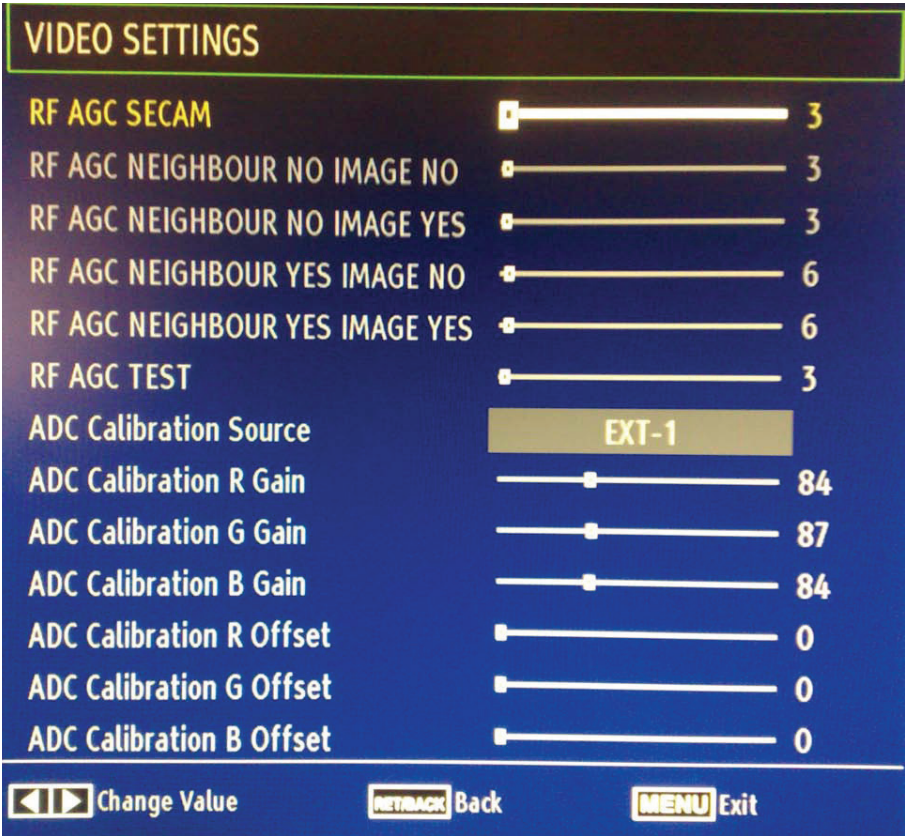
19. SERVICE MENU SETTINGS

In order to reach service menu, first press “ **MENU** ”, then press the remote control code two times, which is “ **4725** ”

In first screen following item can be seen:



19.1 Video Setting



19.2 Audio Settings



19.3 Options

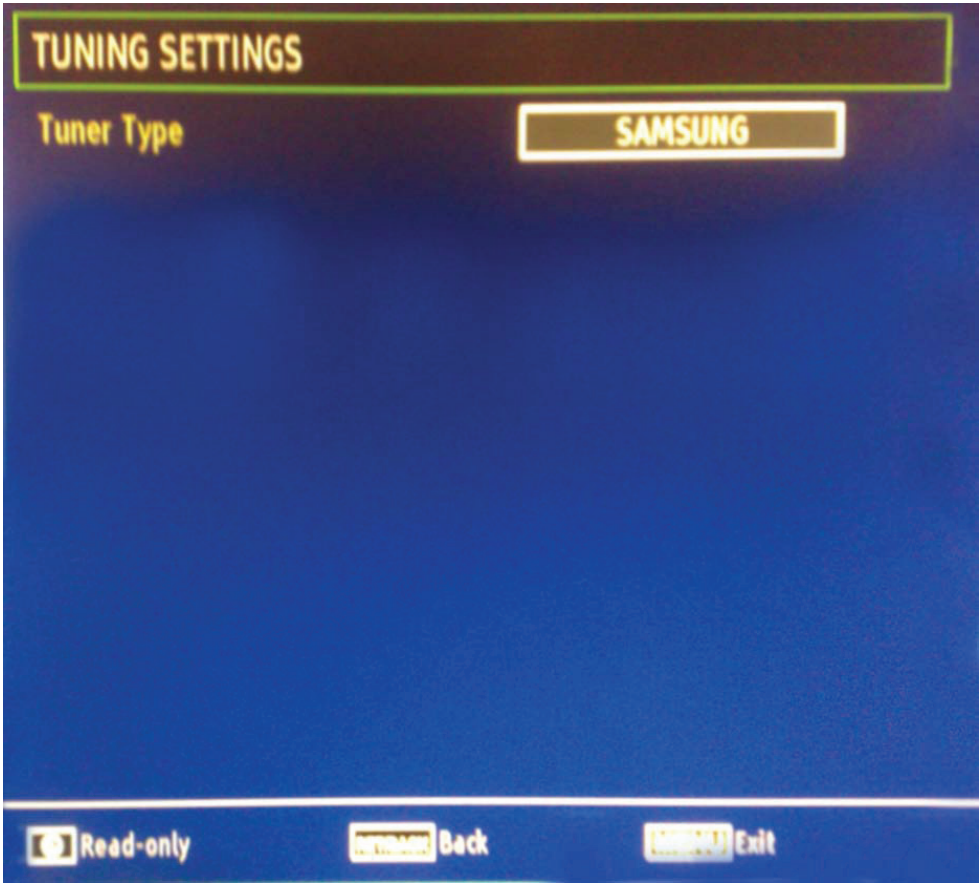
Options-1

OPTIONS 1	
Auto TV OFF	4 h
Power Up Mode	Last State
BacklightTrick Mode	Yes
Cable Support	No
EPG Type	2
Hotel Mode	Yes
LCN	No
PC Standby	Yes
Stby Search	Yes
Test Tool	Yes
Local Key	KeyPad
Volume Level	15

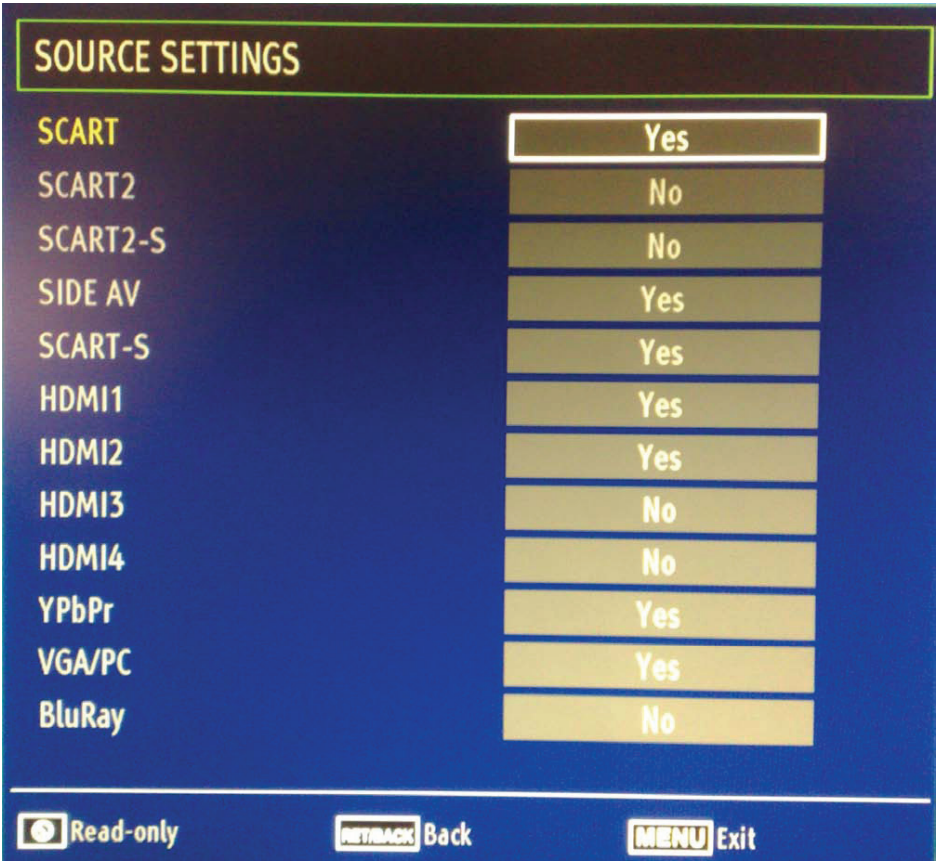
Options-2

OPTIONS 2	
Aps Sorting	Enabled
Dynamic Menu	Disabled
EPG Menus	Enabled
Transparent Text	Enabled
HDMI Number	2
HDMI Auto Switch	Enabled
Rc Type	Rc3900
DCF ID	4851.dcf
Touchpad Sw Version	0

19.4 Tuning Settings



19.5 Source Settings



19.6 USB Operations

USB operations option can not be used directly. It can be used for updating panel tool, configuration etc.

SOFTWARE UPDATE

20. SOFTWARE UPDATE

In MB62 project there is only one software. From following steps software update procedure can be seen:

1. MB62 en. bin, mboot.bin and usb_auto_update_mb62.txt documents should copy directly inside of flash memory (not in a folder).
2. Put flash memory to the TV when TV is powered off.
3. Power on the TV by main switch and press OK in remote control continuously during 3 -4 seconds. Then led will start blinking (red / green) quickly.
4. If First Time installation screen comes, it means software update procedure is successful.

TROUBLESHOOTING

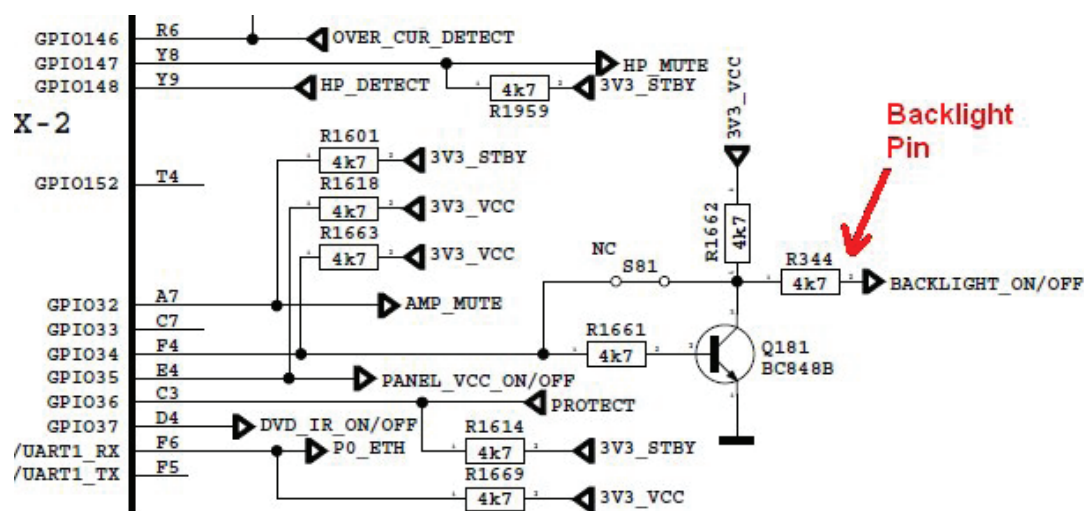
21. TROUBLESHOOTING

21.1. No Backlight Problem

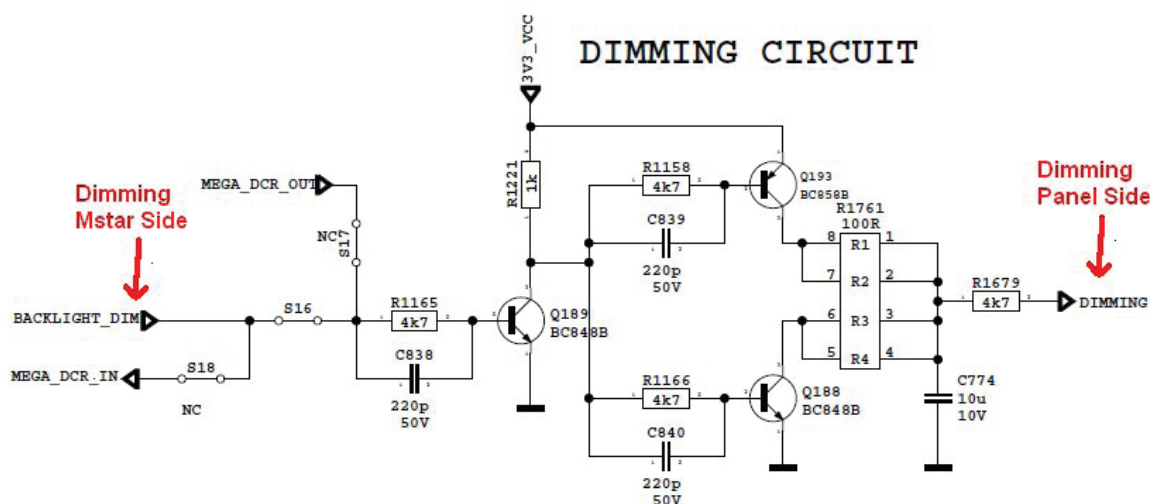
Problem: If TV is working, led is normal and there is no picture and backlight on the panel.

Possible causes: Backlight pin, dimming pin, backlight supply, stby on/off pin

Backlight pin should be high in open position. If it is low, please check Q181 and panel cables.

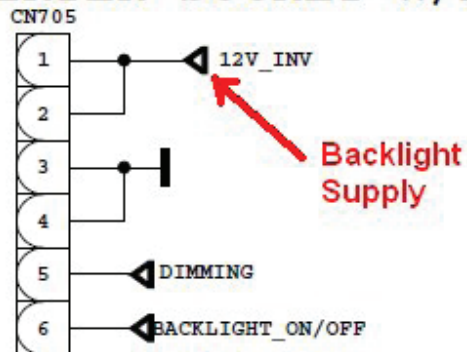


Dimming pin should be high or square wave in open position. If it is low, please check S16 for Mstar side and panel or power cables, connectors.

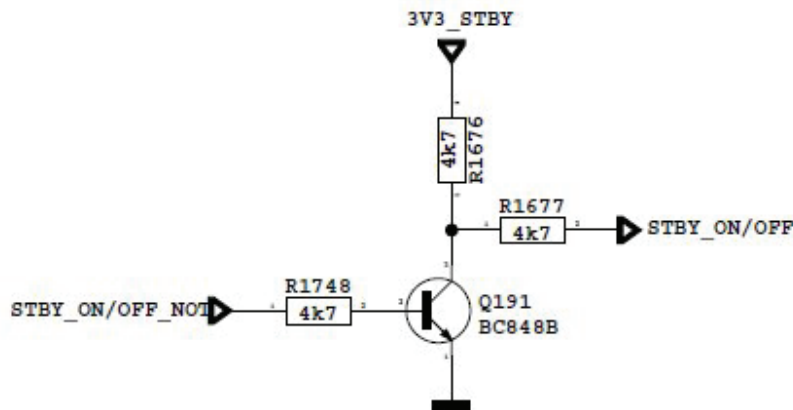


Backlight power supply should be in panel specs. Please check CN705 for MB62, related connectors for power supply cards.

INVERTER SOCKET W/ADAPTER



STBY_ON/OFF should be low for standby on condition, please check R1677.



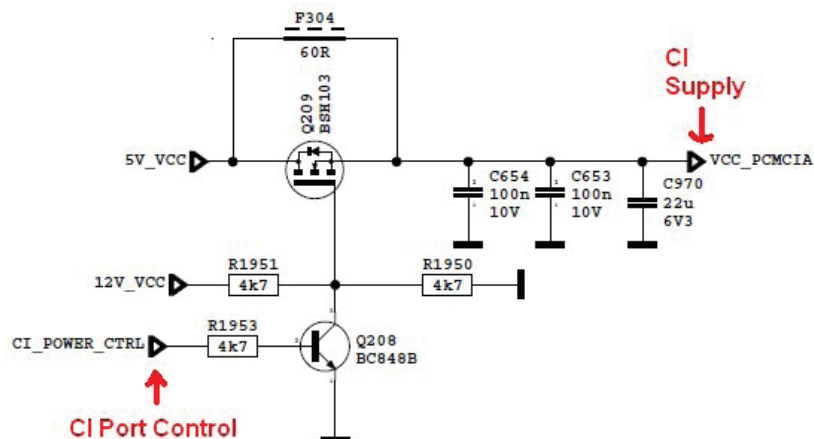
21.2. CI Module Problem

Problem: CI is not working when CI module inserted.

Possible causes: Supply, supply control pin, detect pins, mechanical positions of pins

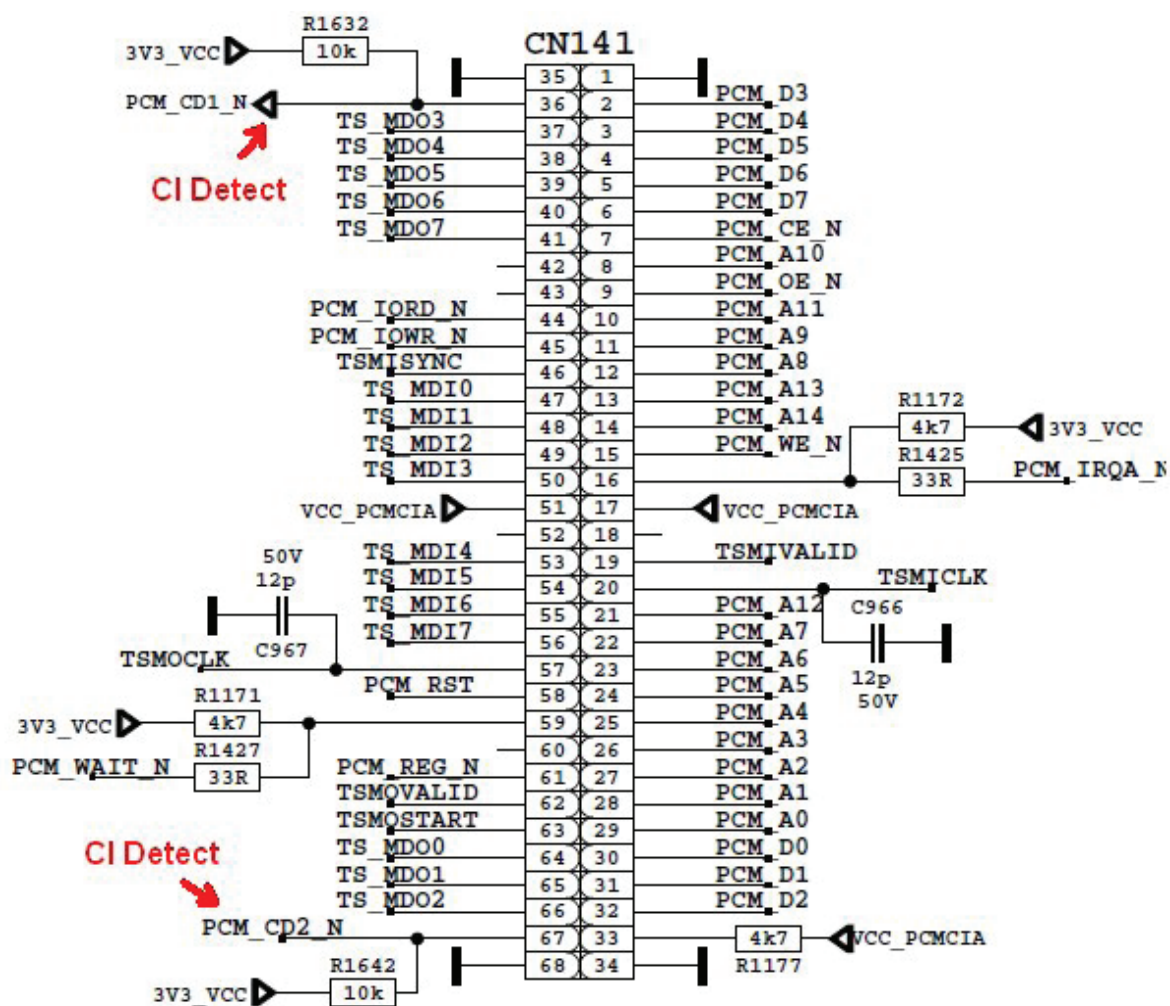
CI supply should be 5V when CI module inserted. If it not 5V please check

CI_POWER_CTRL, this pin should be low.



Please check mechanical positions of CI module.

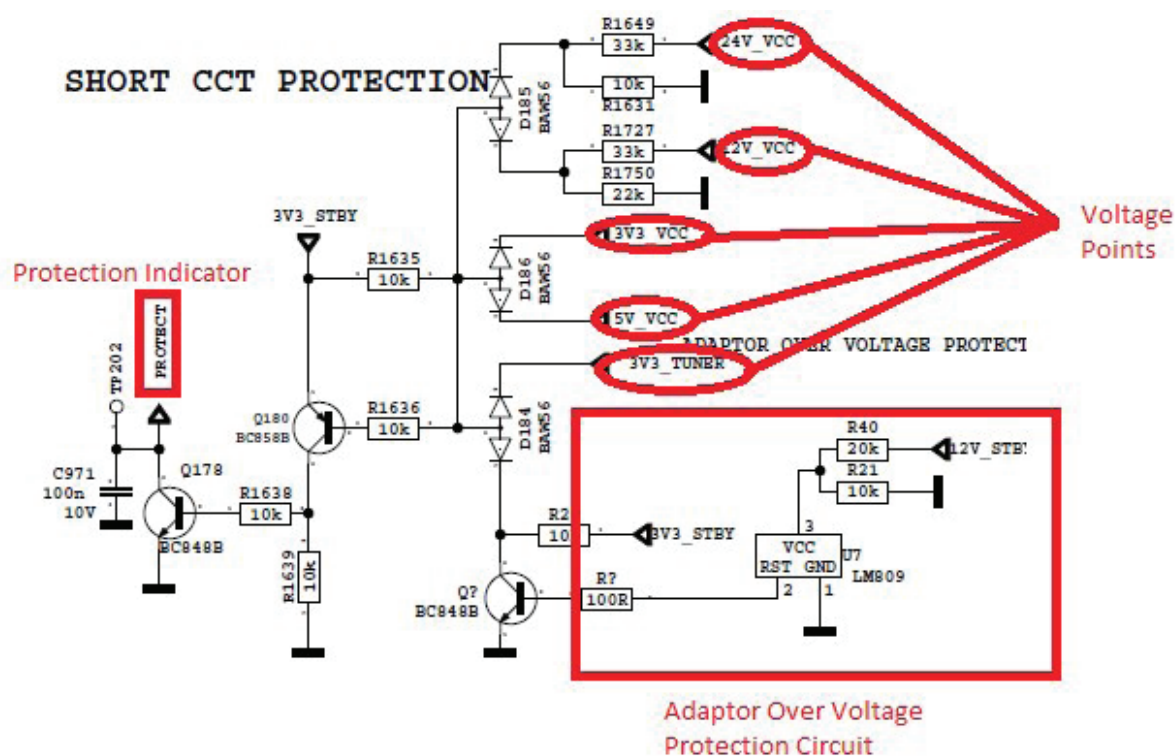
Detect ports should be low. If it is not low please check CI connector pins, CI module pins and 3V3_VCC on MB62.



21.3. Led Blinking Problem

Problem: LED blinking, no other operation

This problem indicates a short on Vcc voltages. Protect pin should be logic high while normal operation. When there is a short circuit protect pin will be logic low. If you detect logic low on protect pin, unplug the TV set and control voltage points with a multimeter to find the shorted voltage to ground.

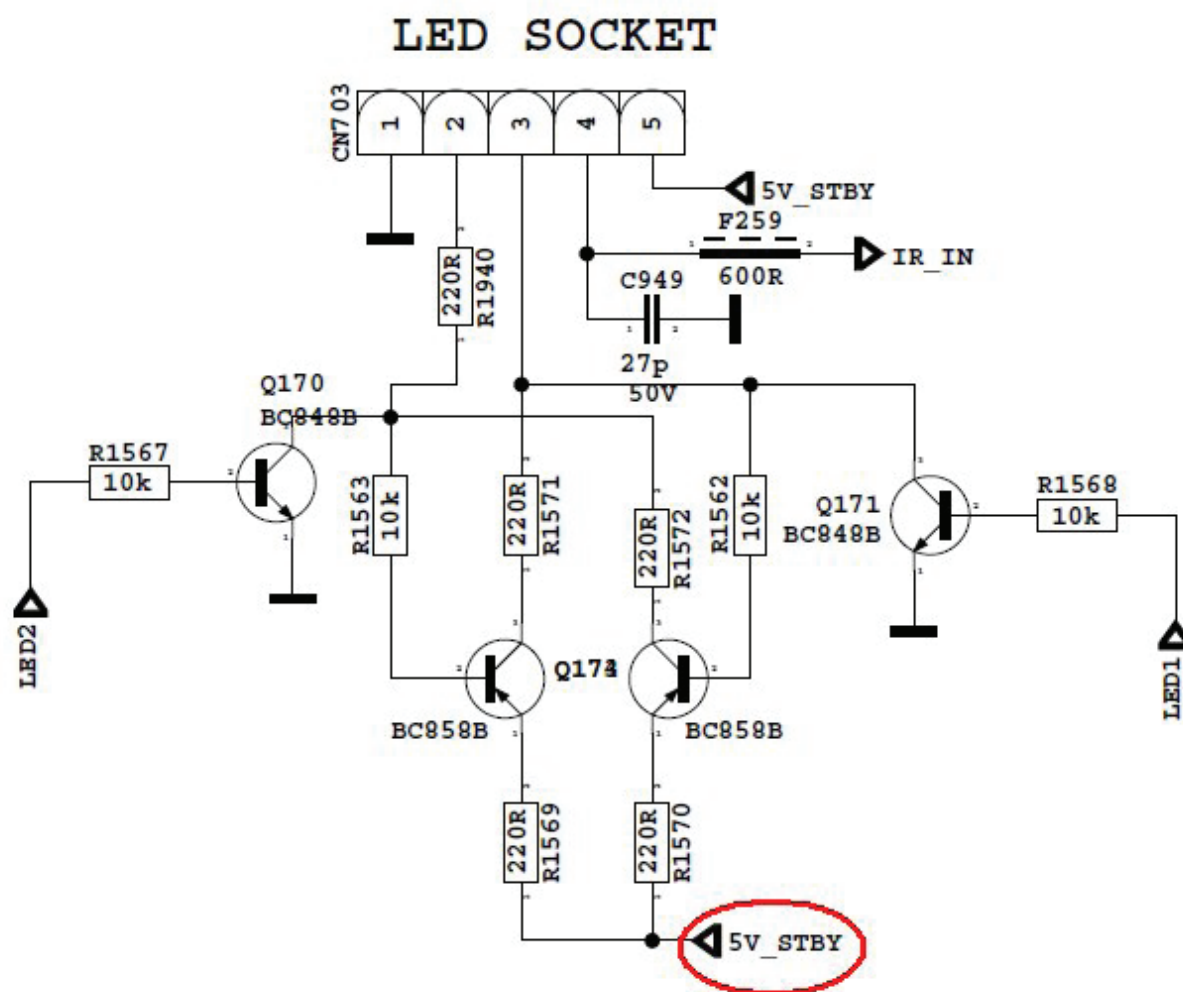


21.4. IR Problem

Problem: LED or IR not working
Check LED card supply on MB62 chasis.

Problem: LED or IR not working

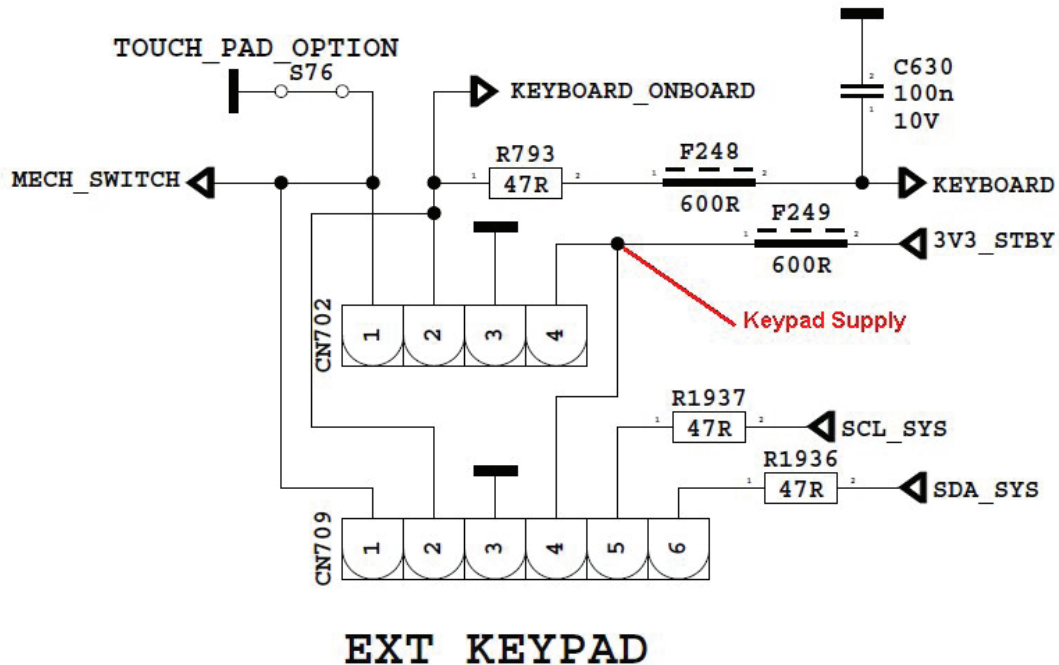
Check LED card supply on MB62 chasis.



21.5. Keypad Touchpad Problems

Problem: Keypad or Touchpad is not working

Check keypad supply and KEYBOARD pin on MB62.

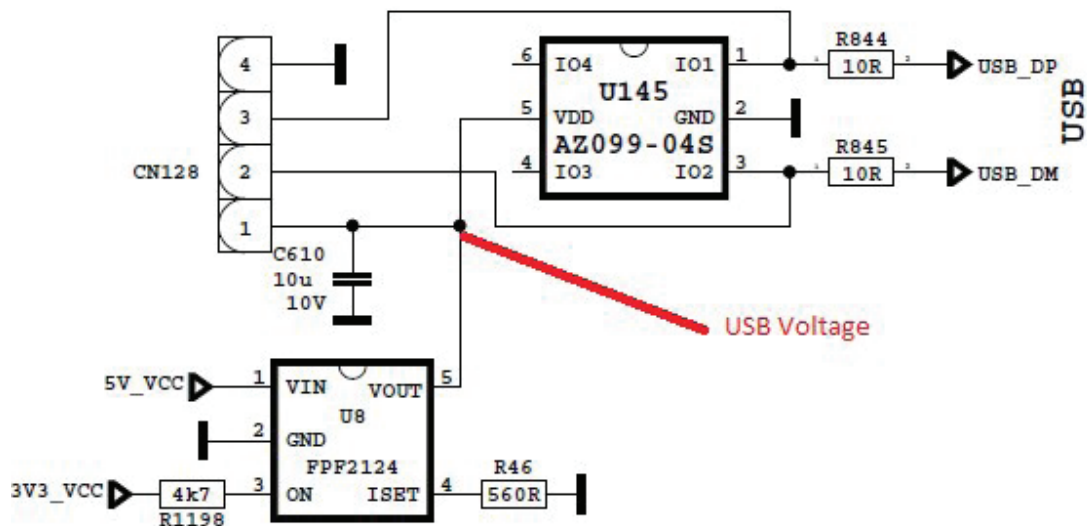


21.6. USB Problems

Problem: USB is not working or no USB Detection.

Check USB Supply, It should be nearly 5V.

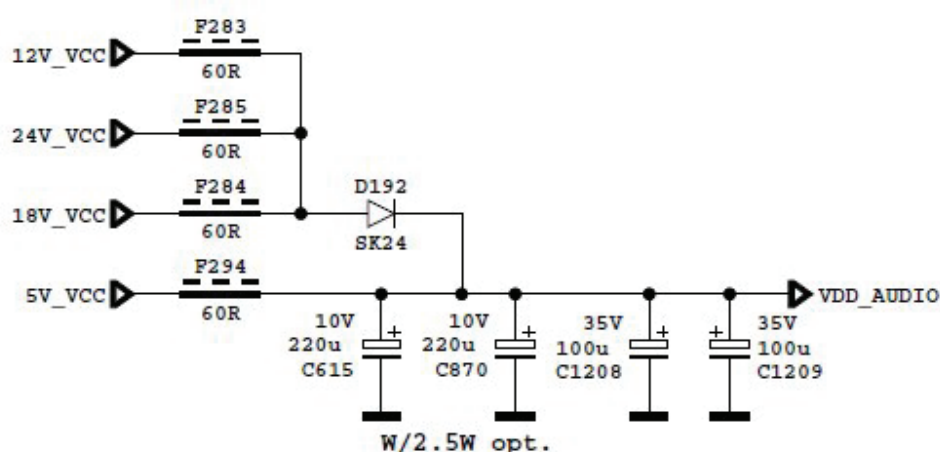
USB INTERFACE



21.7. No Sound Problem

Problem: No audio at main TV speaker outputs.

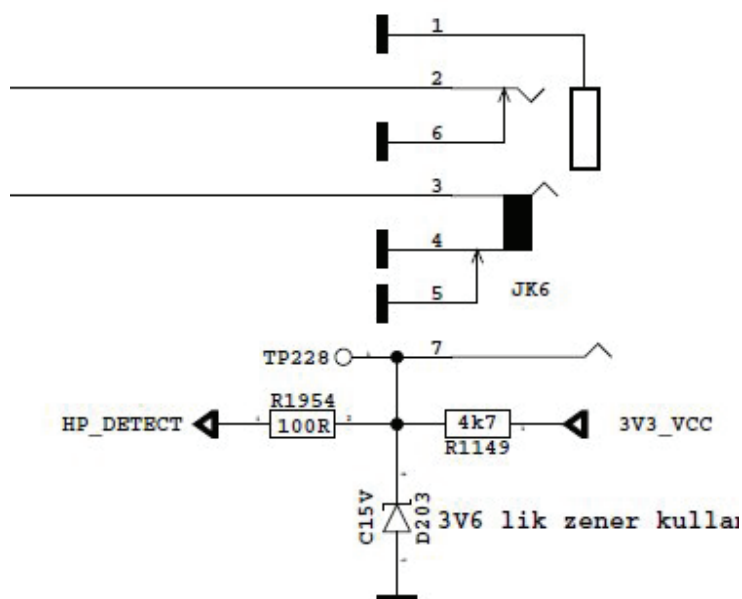
Check supply voltages of VDD_AUDIO, 5V_VCC and 3V3_VCC with a voltage-meter. There may be a problem in headphone connector or headphone detect circuit (when headphone is connected, speakers are automatically muted). Measure voltage at HP_DETECT pin, it should be 3.3v.



21.8. No Sound Problem at Headphone

Problem: No audio at headphone output.

Check HP detect pin, when headphone is connected. Check 5V_VCC and 3V3_VCC with a voltage meter.



21.9. Standby On/Off Problem

Problem:

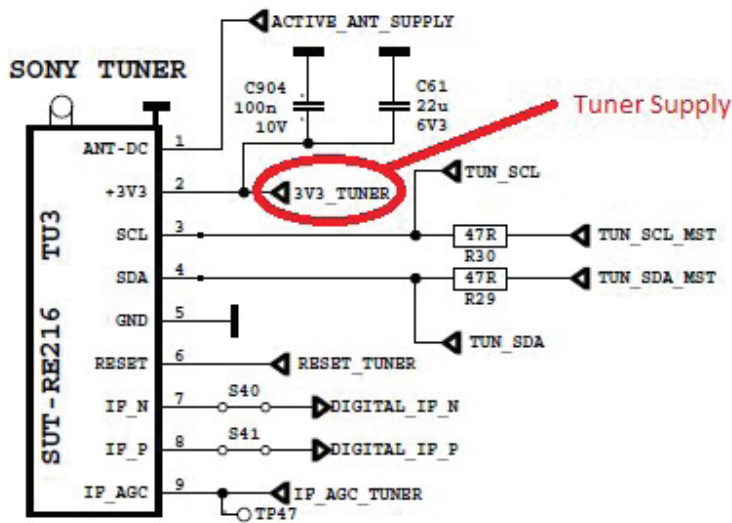
Device cannot boot, TV hangs in standby mode.

There may be a problem about power supply. Check 12V_VCC, 5V_VCC and 3V3_VCC with a voltage-meter. Also there may be a problem about SW. Try to update TV with latest SW. Additionally it is good to check SW printouts via hyper-terminal (or Teraterm). These printouts may give a clue about the problem.

21.10. No Signal Problem

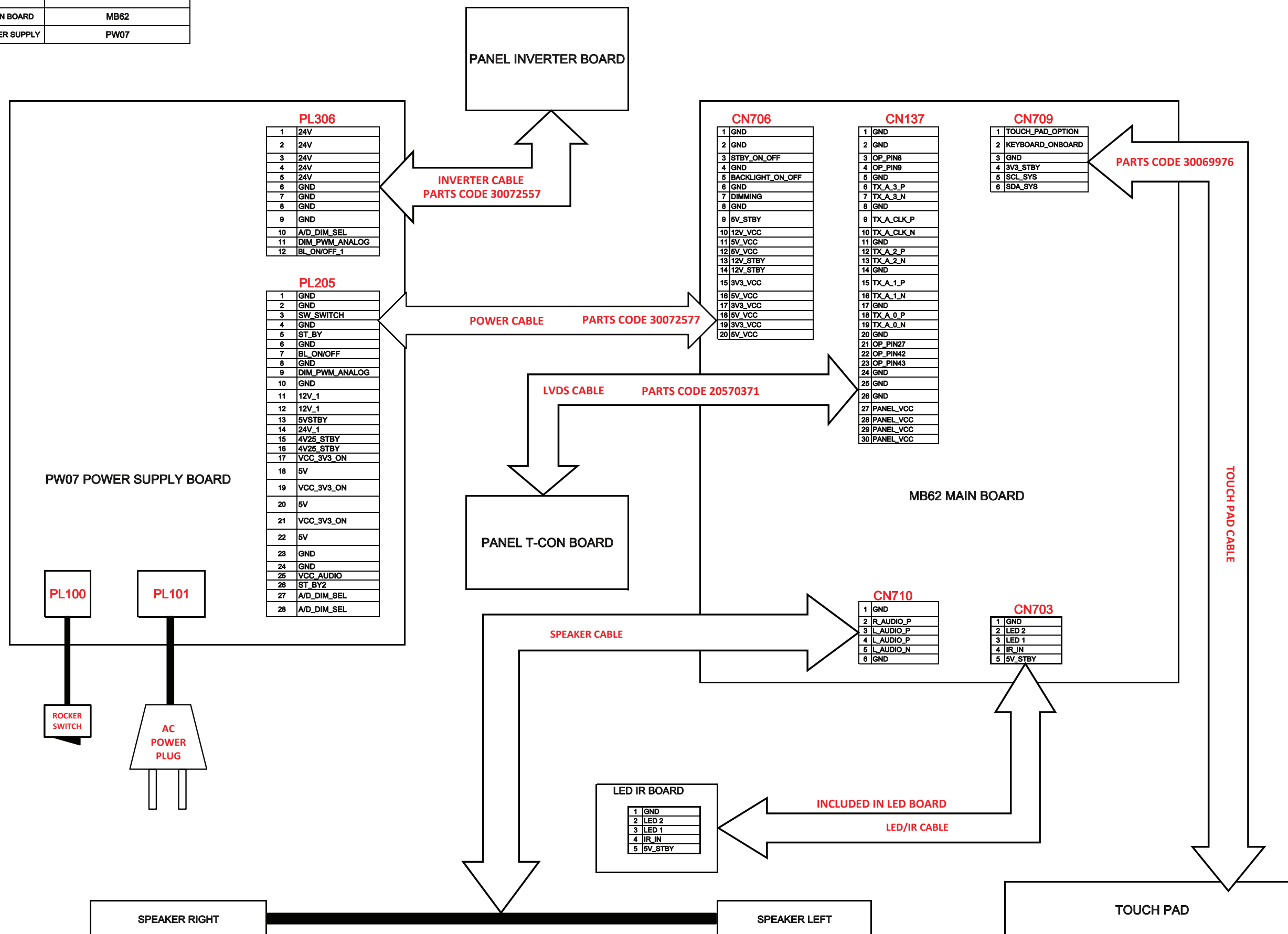
Problem: No signal in TV mode.

Check tuner supply voltage; 3V3_TUN. Check tuner options are correctly set in Service menu. Check AGC voltage at IF_AGC pin of tuner.



22. LC-32LE140 OVERALL WIRING DIAGRAM

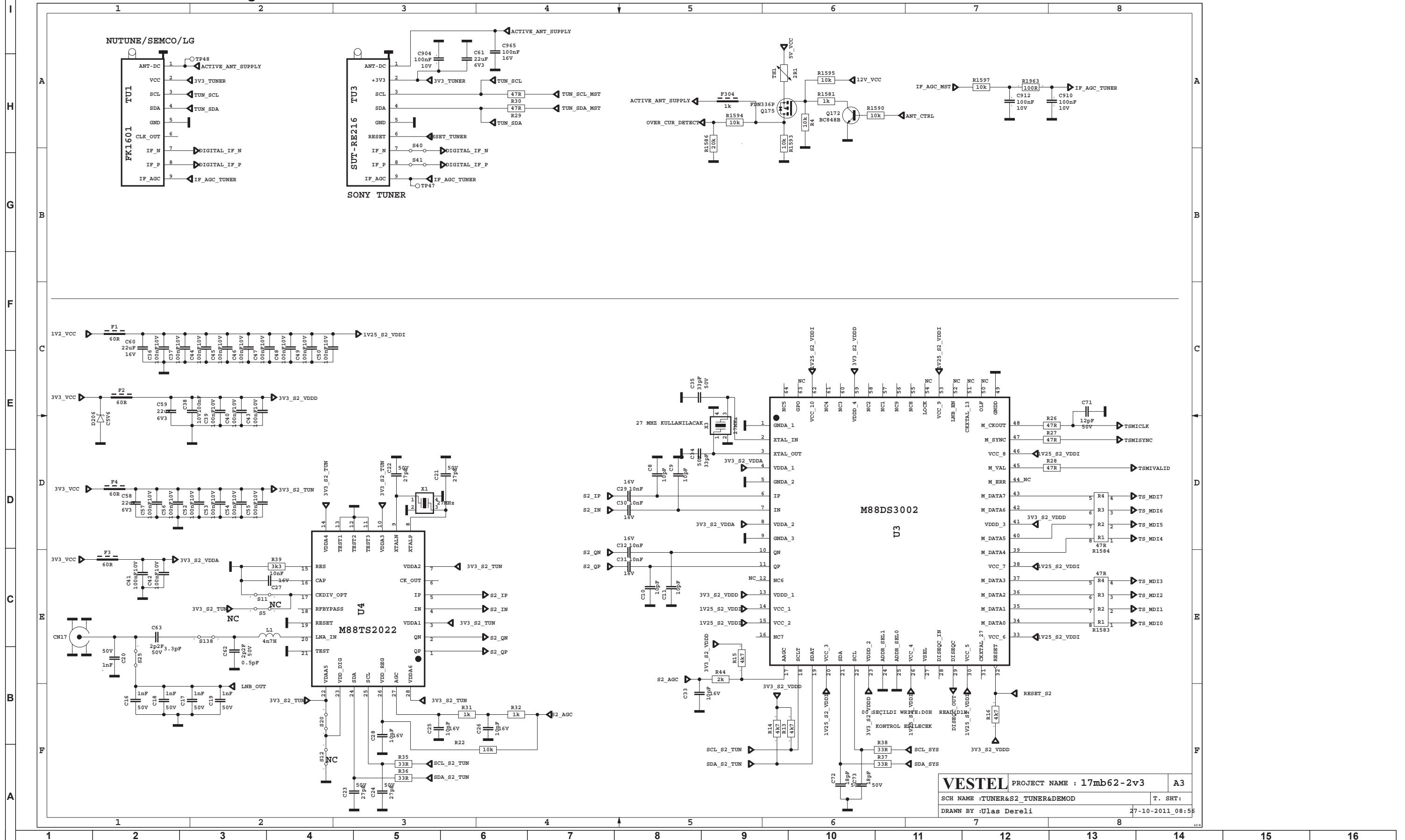
MODEL	LC32LE140E & LC32LE140EV LC32LE140EK & LC32LE140RU
MAIN BOARD	MB62
POWER SUPPLY	PW07



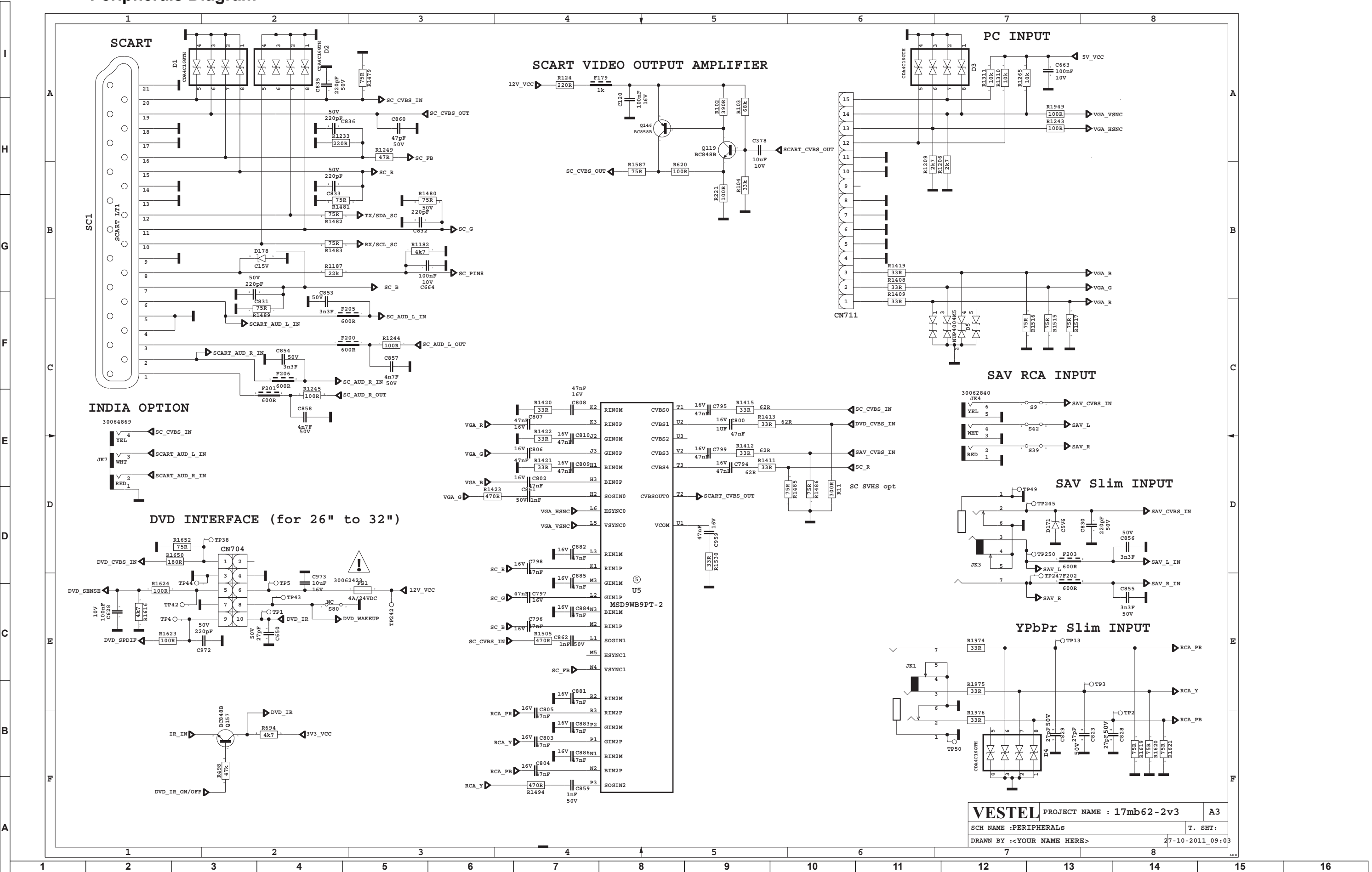
SCHEMATIC DIAGRAMS

23 . Schematic Diagrams

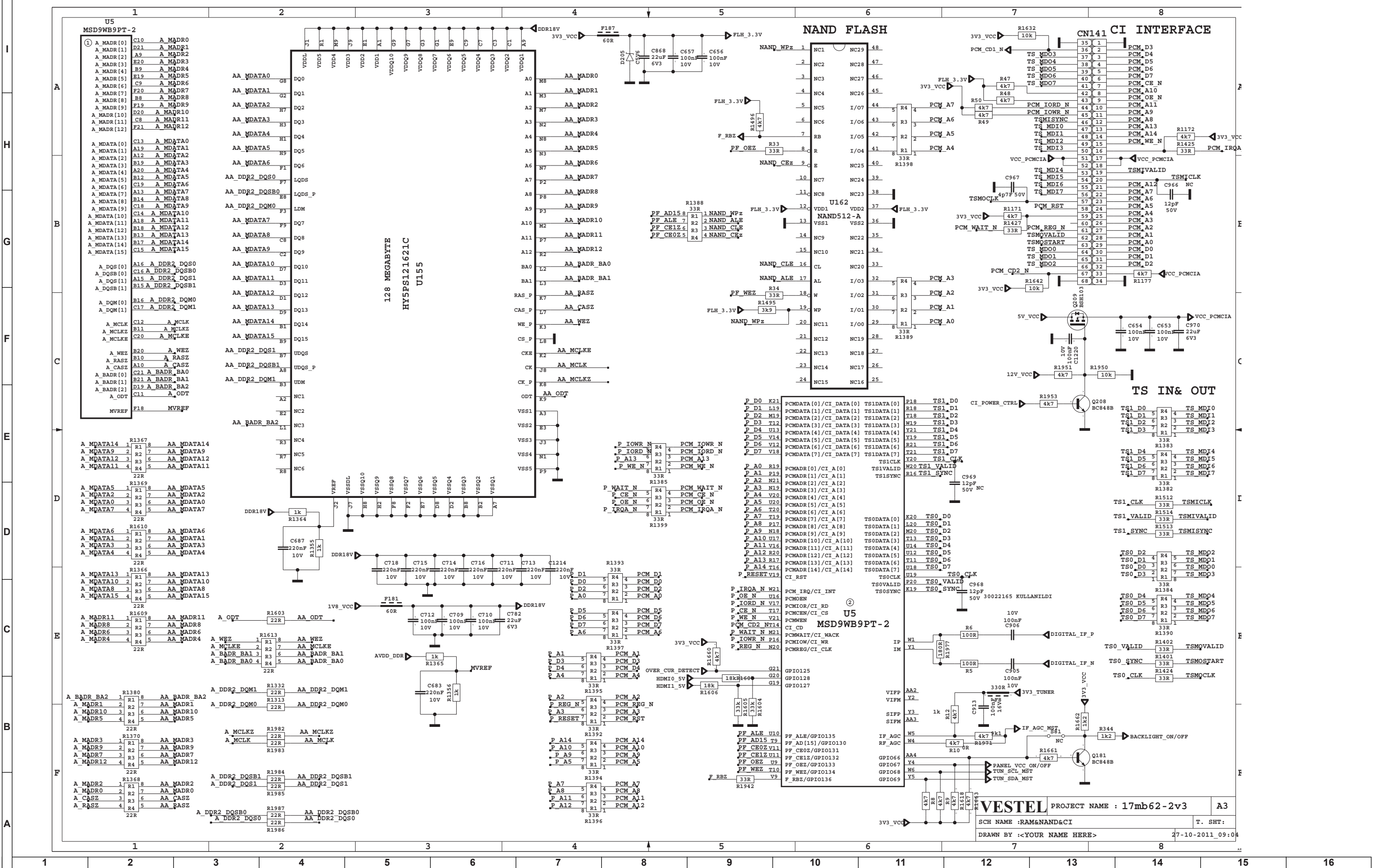
Tuner & T2 Demodulator Diagram



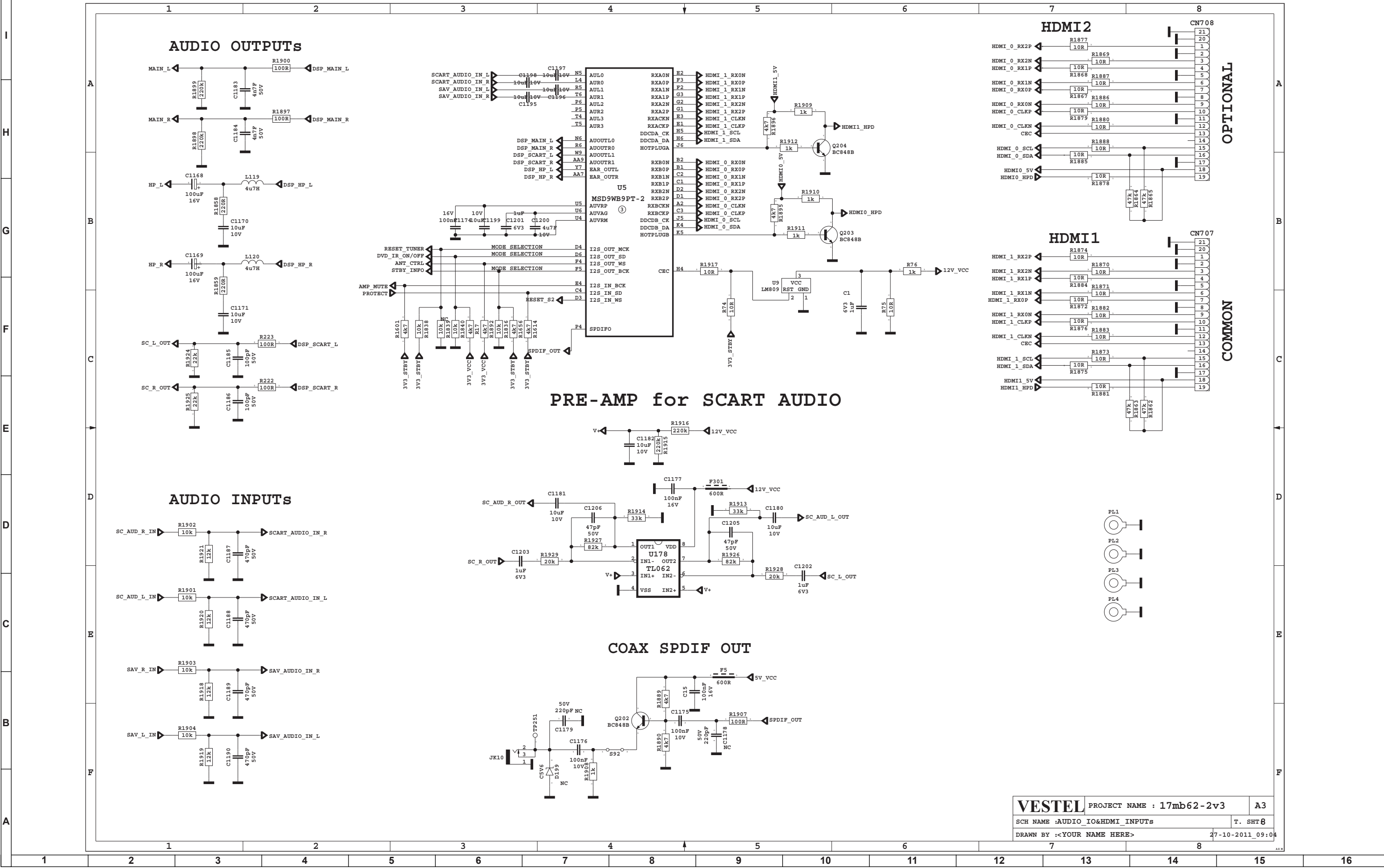
Peripherals Diagram



RAM & NAND & CI Diagram



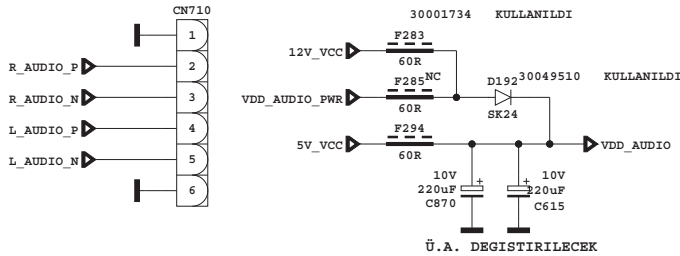
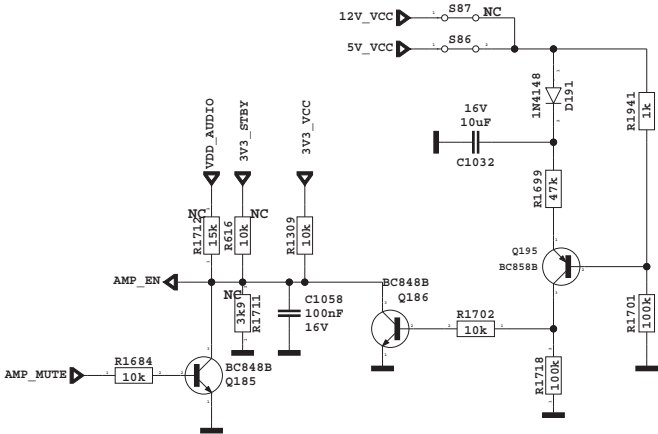
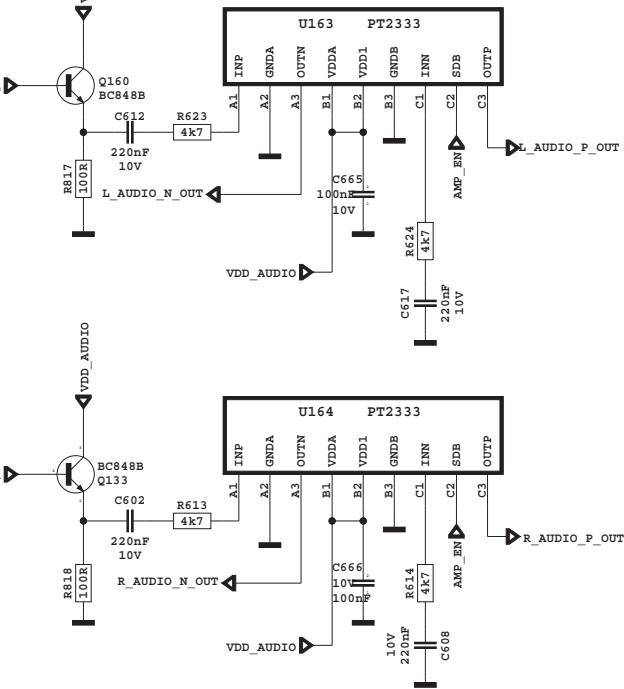
Audio IO & HDMI Inputs Diagram



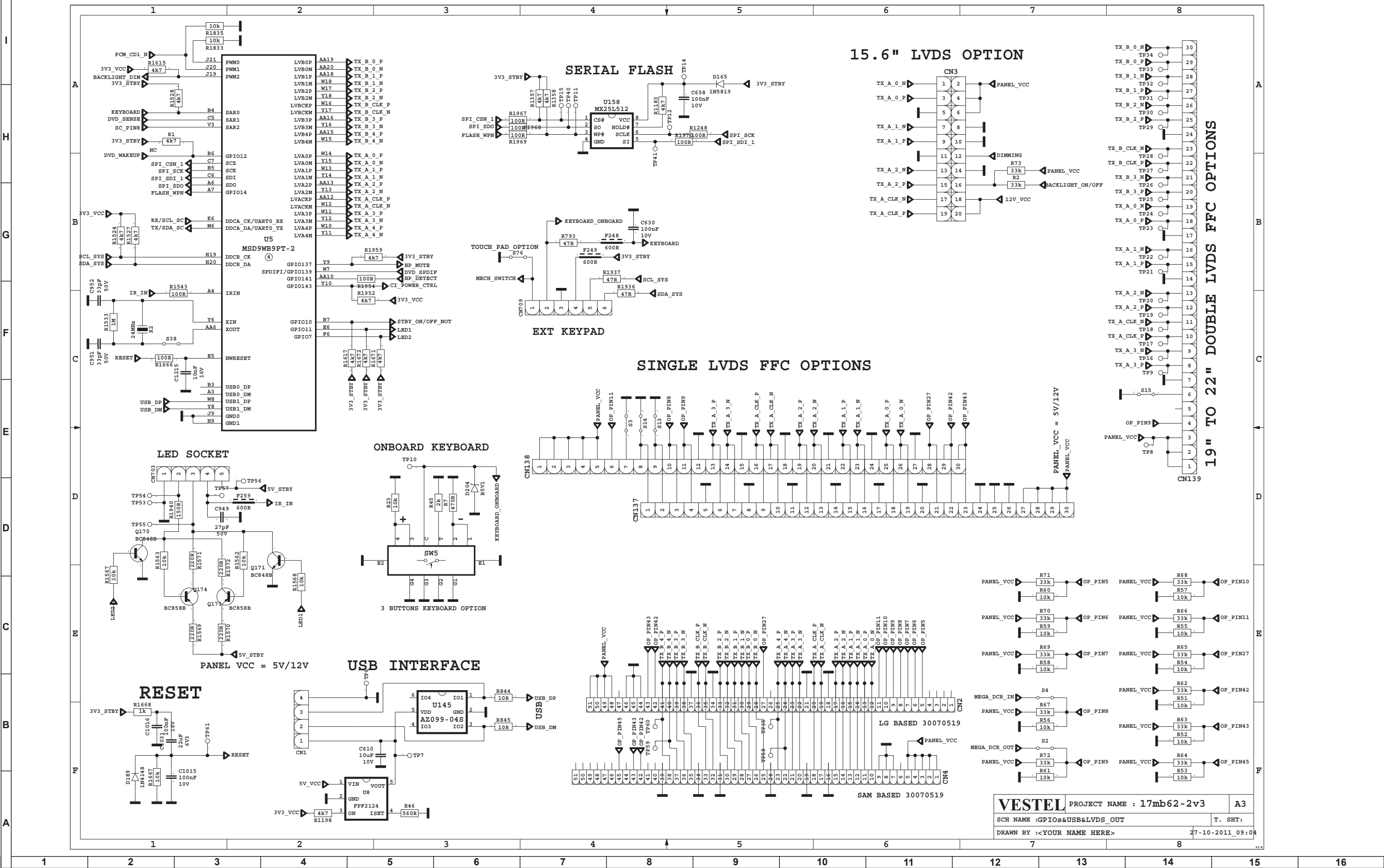
Audio AMP & HP AMP Diagram

AUDIO AMP for 16" to 24"

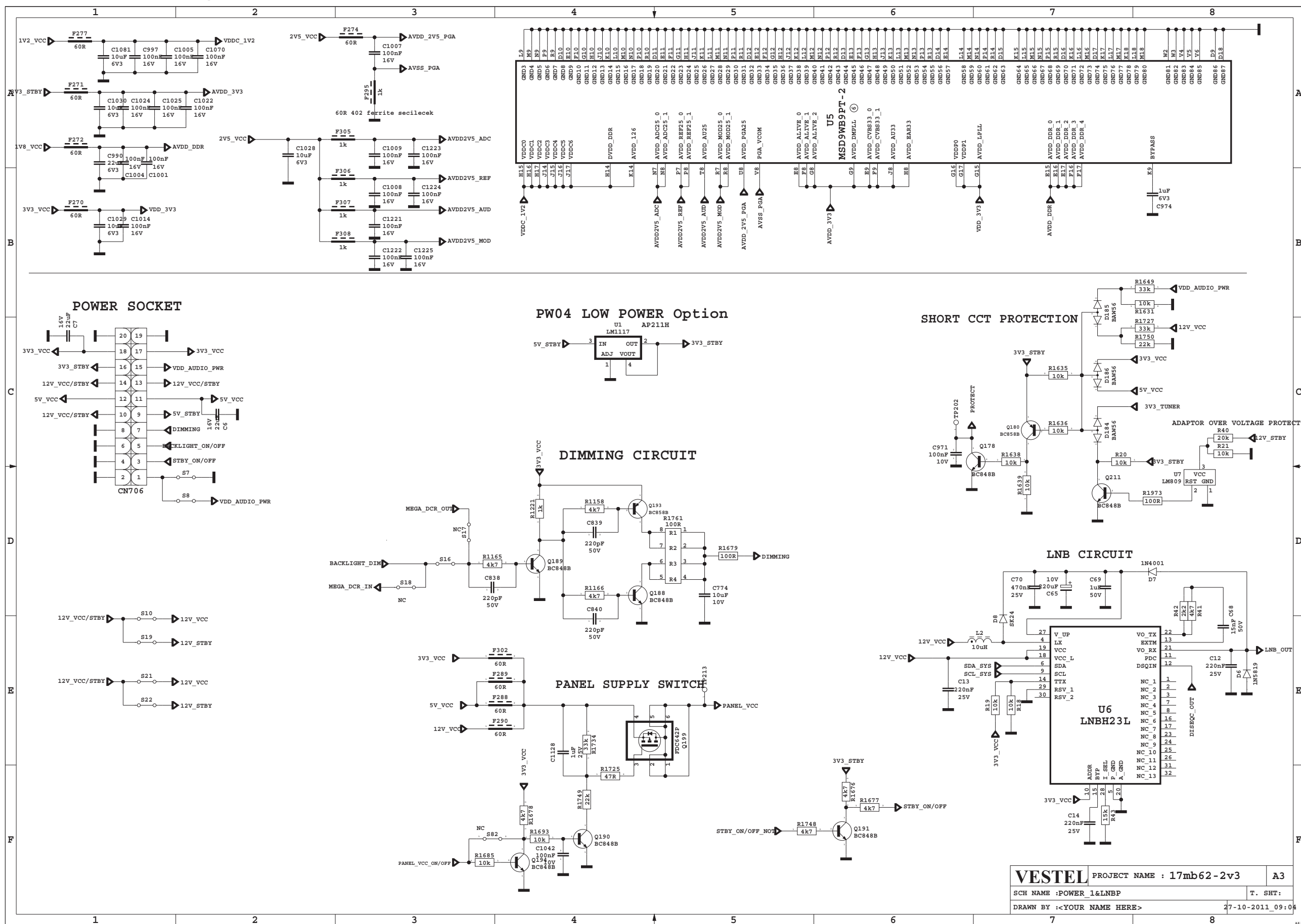
POP NOISE CIRCUIT



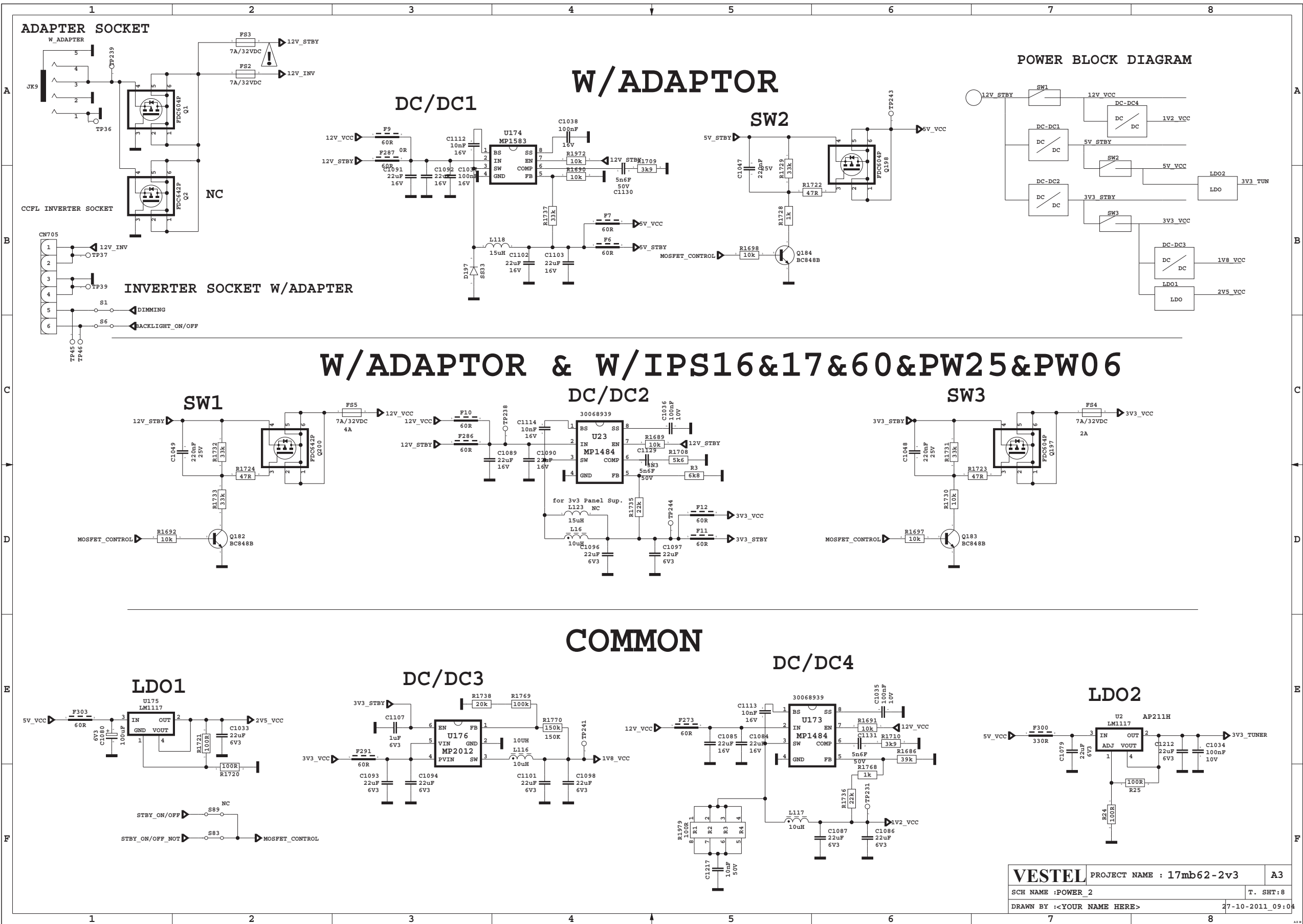
GPIOS & USB & LVDS_OUT Diagram



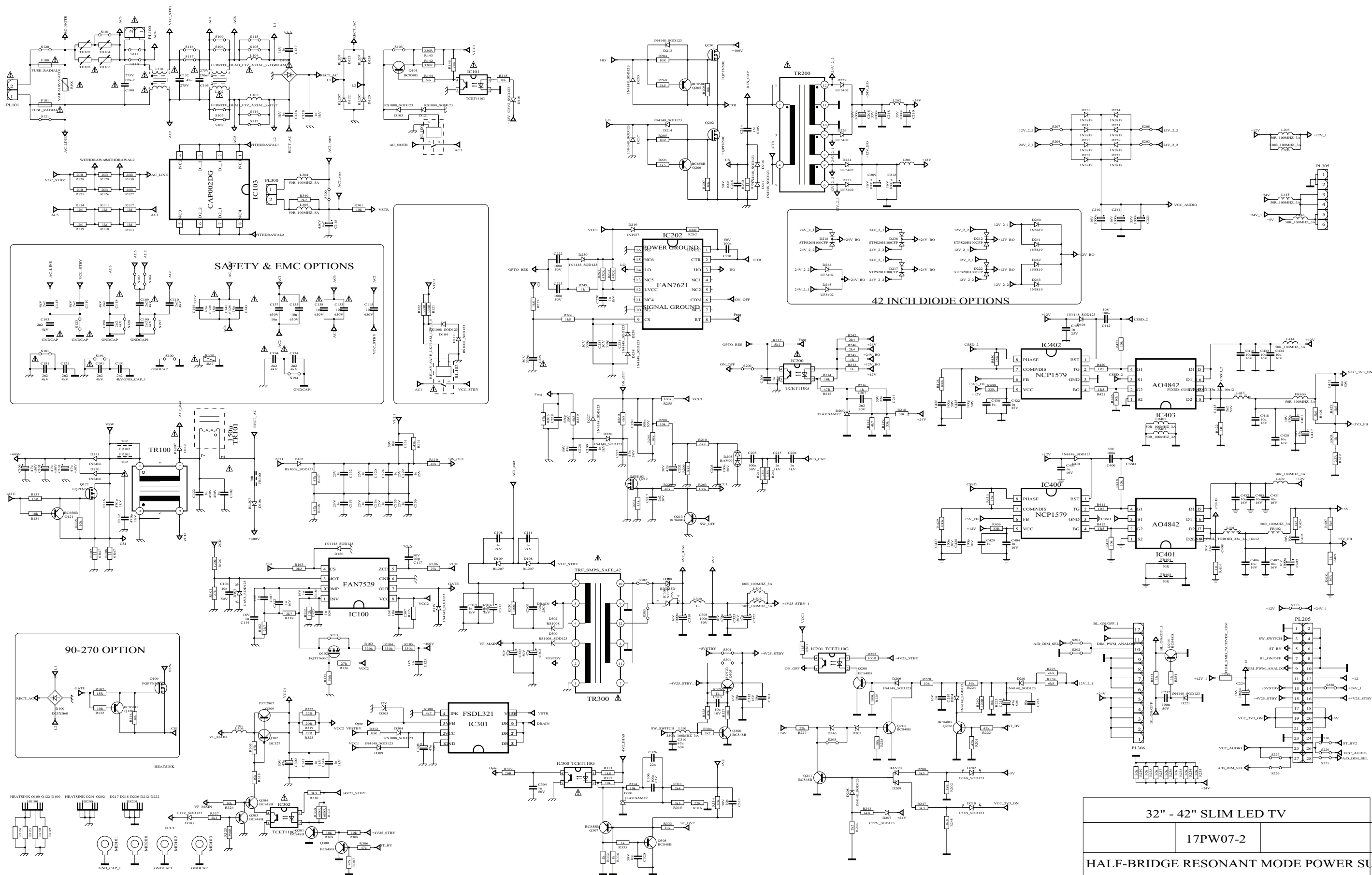
POWER_1 & LNBP Diagram



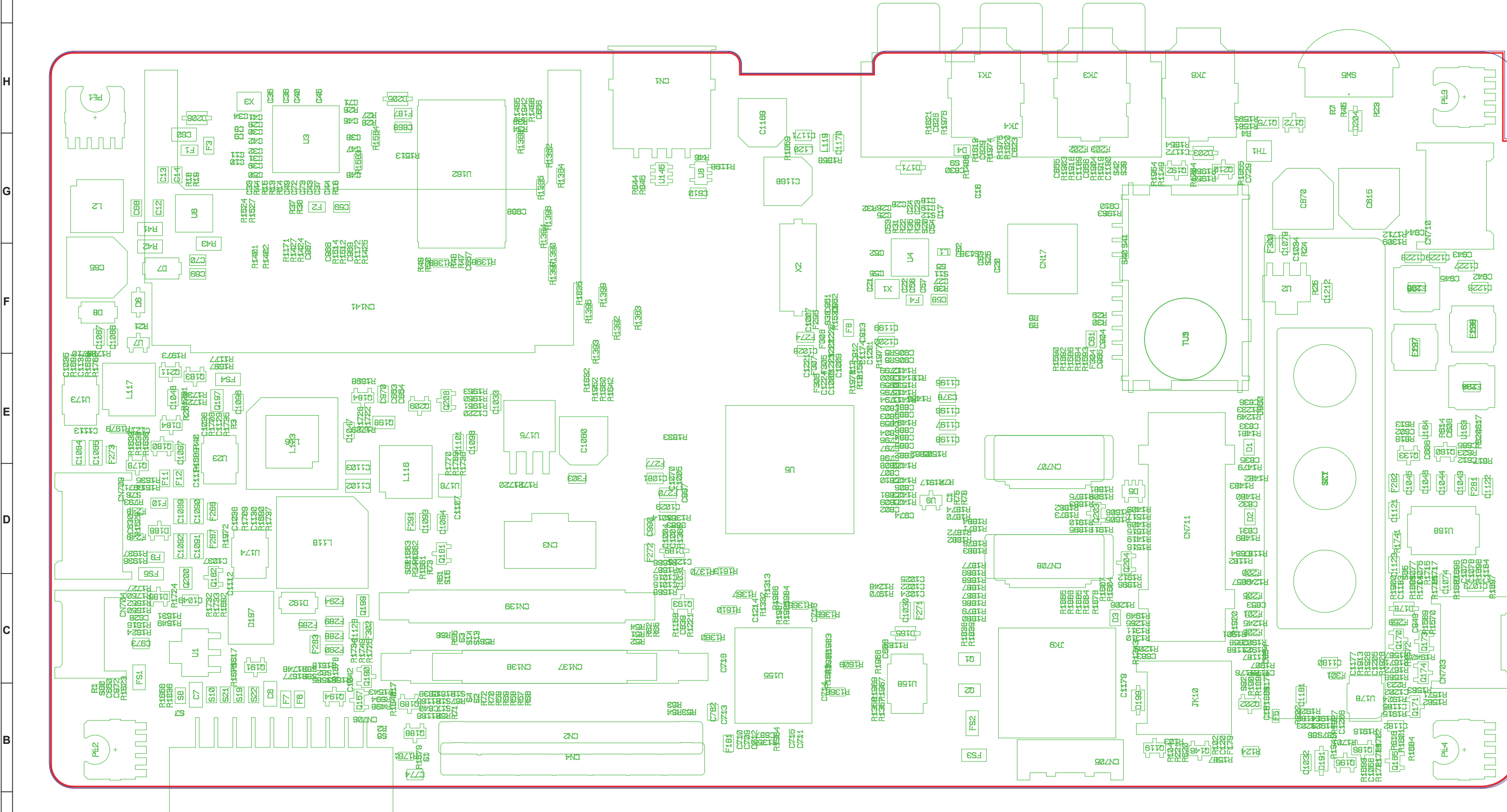
POWER_2 Diagram



POWER SUPPLY Diagram



A
B
C
D
E
F
G
H
I



NOTES:

PARTS LISTING

REPLACEMENT PARTS

Replacement parts which have special safety characteristics are identified in this manual.
Electrical components having such features are identified by Δ in the Replacement Parts Listing.

The use of a substitute replacement part which does not have the same safety characteristics as the factory recommended is not permitted.

Replacement parts not shown in this service manual may create shock fire, or other hazards.

HOW TO ORDER REPLACEMENT PARTS

To have your order completed promptly and correctly please supply the following information.

- | | | |
|-----------------|-------------|-------------|
| 1. MODEL NUMBER | 2. REF. NO. | 3. PART NO. |
| 4. DESCRIPTION | 5. CODE | 6. QUANTITY |

MARK * : SPARE DELIVERY SECTION (G: EPC SHARP GmbH)

REF No.	PARTS	DESCRIPTION	* PRICE CODE
LC32LE140E-EV-EK-RU LCD PANEL			
NOTE : THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY			
	30071793	TFT 32HD50HZ ELED LG LC320EXN-SDA1(PL) PANEL 32"	G --
PRINTED WIRING BOARDS			
	23003246	CHS.ASSY.17MB62-F2L1212H292221121222A MAIN LC32LE140E/EV/RU	G --
	23028957	CHS.ASSY.17MB62-F2L1212H292221121222A MAIN LC32LE140EK	G --
	20565400	MD.ASY.17LD98-7-26880(25/35)(SHARP)RED/GR) I/R & LED BOARD	G --
	20571297	MD.ASY.17TK124F-1-TOUCH PAD BOARD	G --
Δ	23028943	MD.ASY.17PW07-32*(MB60 SHARP) RCO_V2 PCB POWER BOARD	G --
LC-32LE140E-EK-EV-RU MB62 MAIN UNIT			
INTEGRATED CIRCUITS			
U1	30069495	IC LDO AP2111H 3.3V/600MA SOT223 ROHS	G --
U145	30062776	DIODE SMD ESD AZ1045-04S SOT23-6 ROHS	G --
U155	30070769	IC DDR2 64Mx16 K4T1G164QF-BCF8 BGA84 ROH	G --
U158	30070314	IC FLASH SPI 8Mb MX25L8006E S08 ROHS	G --
U162	30072037	IC NAND 512Mb NAND512W3A2SN6F TSOP48 ROH	G --
U168	30068105	IC AAMP TPA3113 2x6W BTL TSSOP28 ROHS	G --
U173	30070995	IC STEP DOWN RT8293A ADJ/3A S08 RoHS	G --
U175	30060344	IC LDO LM1117 ADJ/1A DPAK ROHS	G --
U176	30066926	IC STEP DOWN MP2012 ADJ/1.5A QFN6 RoHS	G --
U178	30057644	IC DOPAMP TL062 S08 ROHS	G --
U2	30069495	IC LDO AP2111H 3.3V/600MA SOT223 ROHS	G --
U5	30070454	IC MSD9WB9PT-2-SS BGA380 RoHS	G --
U5	40045953	SUPER THIN POWDER (17.5"17.5"2)RoHS	G --
U8	30068149	IC POWER SW ADJ FPF2124 SOT23-5 ROHS	G --
U9	30017001	IC RESET MAX809LTR Vth=4.63V SOT23 RoHS	G --
TRANSISTORS			
Q119	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q146	30001458	TR BC858B SMD	G --
Q170	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q171	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q173	30001458	TR BC858B SMD	G --
Q174	30001458	TR BC858B SMD	G --
Q178	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q180	30001458	TR BC858B SMD	G --
Q181	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q185	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q186	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q188	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q189	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --

REF No.	PARTS	DESCRIPTION	* PRICE CODE
Q190	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q191	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q192	30010733	TR NMOS 2N7002 0.115A/60V SOT23 ROHS	G --
Q193	30001458	TR BC858B SMD	G --
Q194	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q195	30001458	TR BC858B SMD	G --
Q199	30018060	TR PMOS FDC642P -4A/-20V SSOT6 ROHS	G --
Q202	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q203	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q204	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q208	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G --
Q209	30069749	TR NMOS BSH105 1.05A/20V SOT23 ROHS	G --
Q210	30010733	TR NMOS 2N7002 0.115A/60V SOT23 ROHS	G --
DIODES			
D1	30070436	DIODE SMD ARRAY ESD CDA4C16GTH 0508 RoHS	G --
D165	30042066	DIODE SMDSCH1N5819 1A/40V/25A SOD123ROHS	G --
D171	30038480	DIODE SMD ZEN C5.6V SOD123 ROHS	G --
D178	30038478	DIODE SMD ZEN C15V SOD123 ROHS	G --
D184	30048473	DIODE DUALSMD BAW56 4A/75V/4A SOT23ROHS	G --
D185	30048473	DIODE DUALSMD BAW56 4A/75V/4A SOT23ROHS	G --
D186	30048473	DIODE DUALSMD BAW56 4A/75V/4A SOT23ROHS	G --
D189	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G --
D191	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G --
D192	30062423	FUSE SAFE SMD 4A/32VDC UF HEMLT 1206RoHS	G --
D2	30070436	DIODE SMD ARRAY ESD CDA4C16GTH 0508 RoHS	G --
D203	30038480	DIODE SMD ZEN C5.6V SOD123 ROHS	G --
D204	30038502	DIODE SMD ZEN B5.1V SOD123 ROHS	G --
D205	30038479	DIODE SMD ZEN C3V6 SOD123 ROHS	G --
D206	30038479	DIODE SMD ZEN C3V6 SOD123 ROHS	G --
D3	30070436	DIODE SMD ARRAY ESD CDA4C16GTH 0508 RoHS	G --
D4	30070436	DIODE SMD ARRAY ESD CDA4C16GTH 0508 RoHS	G --
D5	30062776	DIODE SMD ESD AZ1045-04S SOT23-6 ROHS	G --
PACKAGED CIRCUITS			
X2	30057263	XTAL SMD 24MHz 22pF 30ppm 250mHC49S RHS	G --
COILS AND FILTERS			
L116	30058702	COIL SMD 10uH 2.5A M 0R4 7x7(SHL)Ro	G --
L117	30058702	COIL SMD 10uH 2.5A M 0R4 7x7(SHL)Ro	G --
L119	30025158	COIL SMD 4.7uH 0.03A M 1R 805 Ro	G --
L120	30025158	COIL SMD 4.7uH 0.03A M 1R 805 Ro	G --
L124	30072017	COIL SMD 10uH 2A5 M 0R06 6X6X4.5 (SHL)Ro	G --
L125	30072017	COIL SMD 10uH 2A5 M 0R06 6X6X4.5 (SHL)Ro	G --
L126	30072017	COIL SMD 10uH 2A5 M 0R06 6X6X4.5 (SHL)Ro	G --
L127	30072017	COIL SMD 10uH 2A5 M 0R06 6X6X4.5 (SHL)Ro	G --
F179	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G --
F181	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F187	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F200	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F201	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F202	30066582	FERRIT SMD 1K/100MHz 1R5 M 50mA 603Ro	G --
F203	30066582	FERRIT SMD 1K/100MHz 1R5 M 50mA 603Ro	G --
F205	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F206	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F248	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F249	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F259	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G --
F270	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
F271	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F272	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F273	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
F274	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F277	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --
F281	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G --

	REF No.	PARTS	DESCRIPTION	*	PRICE CODE
	F282	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
	F283	30001734	RES SMD 1/10W 0R 0805 ROHS	G	--
	F290	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
	F291	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
	F295	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	F300	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
	F301	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G	--
	F303	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
	F305	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	F306	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	F307	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	F308	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	F5	30020530	FERRIT SMD 600R/100MHz 0.5R M 0.2A 603Ro	G	--
	F8	30019087	FERRIT SMD 60R/100MHz 0.025 M 3A 0805Roh	G	--
TUNER					
	TU3	30070628	TUNER SILICAN HNIM SUT-RE216 RoHS	G	--
CAPACITORS					
	C1	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G	--
	C1001	30044848	CAP SMD 100NF 16V K X7R (0402) ROHS	G	--
	C1004	30044848	CAP SMD 100NF 16V K X7R (0402) ROHS	G	--
	C1005	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1007	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1008	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1009	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1014	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1015	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1016	30044848	CAP SMD 100NF 16V K X7R (0402) ROHS	G	--
	C1022	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1024	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1025	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1028	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1029	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1030	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1031	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1032	30064117	CAP SMD 10UF 16V K X5R (0805) RoHS	G	--
	C1033	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1034	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1035	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1042	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1043	30010560	CAP SMD 220NF 25V K X7R (0805) ROHS	G	--
	C1044	30010560	CAP SMD 220NF 25V K X7R (0805) ROHS	G	--
	C1045	30010560	CAP SMD 220NF 25V K X7R (0805) ROHS	G	--
	C1046	30010560	CAP SMD 220NF 25V K X7R (0805) ROHS	G	--
	C1058	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1070	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1073	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1074	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1075	30050557	CAP SMD 470NF 6.3V K X5R (0402) RoHS	G	--
	C1076	30050557	CAP SMD 470NF 6.3V K X5R (0402) RoHS	G	--
	C1077	30050557	CAP SMD 470NF 6.3V K X5R (0402) RoHS	G	--
	C1078	30050557	CAP SMD 470NF 6.3V K X5R (0402) RoHS	G	--
	C1079	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1080	30010594	CAP ELCH 100UF 16V M 86mA 6.3x5.4 ROHS	G	--
	C1081	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1084	30067595	CAP SMD 22UF 16V M X5R (1206) RoHS	G	--
	C1085	30067595	CAP SMD 22UF 16V M X5R (1206) RoHS	G	--
	C1086	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1087	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1093	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1094	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1098	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1101	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1107	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G	--

	REF No.	PARTS	DESCRIPTION	*	PRICE CODE
	C1113	30022342	CAP SMD 10NF 16V J X7R (0402) ROHS	G	--
	C1121	30064117	CAP SMD 10UF 16V K X5R (0805) RoHS	G	--
	C1122	30064117	CAP SMD 10UF 16V K X5R (0805) RoHS	G	--
	C1123	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1128	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1131	30022339	CAP SMD 5.6NF 50V J X7R (0402) ROHS	G	--
	C1168	30010594	CAP ELCH 100UF 16V M 86mA 6.3x5.4 ROHS	G	--
	C1169	30010594	CAP ELCH 100UF 16V M 86mA 6.3x5.4 ROHS	G	--
	C1170	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1171	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1172	30022342	CAP SMD 10NF 16V J X7R (0402) ROHS	G	--
	C1174	30044848	CAP SMD 100NF 16V K X7R (0402) ROHS	G	--
	C1175	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1176	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C1177	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1178	30022244	CAP SMD 100PF 50V J COG (0402) ROHS	G	--
	C1179	30022244	CAP SMD 100PF 50V J COG (0402) ROHS	G	--
	C1180	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1181	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1182	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1183	30022338	CAP SMD 4.7NF 50V J X7R (0402) RoHS	G	--
	C1184	30022338	CAP SMD 4.7NF 50V J X7R (0402) RoHS	G	--
	C1185	30022244	CAP SMD 100PF 50V J COG (0402) ROHS	G	--
	C1186	30022244	CAP SMD 100PF 50V J COG (0402) ROHS	G	--
	C1187	30022196	CAP SMD 470PF 50V J X7R (0402) ROHS	G	--
	C1188	30022196	CAP SMD 470PF 50V J X7R (0402) ROHS	G	--
	C1189	30022196	CAP SMD 470PF 50V J X7R (0402) ROHS	G	--
	C1190	30022196	CAP SMD 470PF 50V J X7R (0402) ROHS	G	--
	C1195	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1196	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1197	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1198	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C1199	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C120	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1200	30047294	CAP SMD 4.7UF 10V K X5R (0805) ROHS	G	--
	C1201	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G	--
	C1202	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G	--
	C1203	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G	--
	C1212	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C1214	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G	--
	C1215	30022338	CAP SMD 4.7NF 50V J X7R (0402) RoHS	G	--
	C1220	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1221	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1222	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1223	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1224	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1225	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G	--
	C1226	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1227	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1228	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C1229	30020142	CAP SMD 1UF 25V Z Y5V (0805) RoHS	G	--
	C15	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C378	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C6	30067595	CAP SMD 22UF 16V M X5R (1206) RoHS	G	--
	C61	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G	--
	C610	30067872	CAP SMD 10UF 10V M X5R (0805) ROHS	G	--
	C615	30067972	CAP ELCH 100UF 35V M105C120mA6.3x7.7RoHS	G	--
	C630	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C653	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C654	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C656	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C657	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C658	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C663	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--
	C664	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G	--

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	C683	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C687	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C7	30067595	CAP SMD 22UF 16V M X5R (1206) RoHS	G --
	C709	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C710	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C711	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C712	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C713	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C714	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C715	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C716	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C718	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --
	C729	30022342	CAP SMD 10NF 16V J X7R (0402) ROHS	G --
	C782	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G --
	C794	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C795	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C796	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C797	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C798	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C799	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C802	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C803	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C804	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C805	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C806	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C807	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C808	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C809	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C810	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C823	30022237	CAP SMD 27PF 50V J COG (0402) ROHS	G --
	C828	30022237	CAP SMD 27PF 50V J COG (0402) ROHS	G --
	C829	30022237	CAP SMD 27PF 50V J COG (0402) ROHS	G --
	C830	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C831	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C832	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C833	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C835	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C836	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C838	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C839	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C840	30022248	CAP SMD 220PF 50V J COG (0402) RoHS	G --
	C853	30022336	CAP SMD 3.3NF 50V J X7R (0402) ROHS	G --
	C854	30022336	CAP SMD 3.3NF 50V J X7R (0402) ROHS	G --
	C855	30022336	CAP SMD 3.3NF 50V J X7R (0402) ROHS	G --
	C856	30022336	CAP SMD 3.3NF 50V J X7R (0402) ROHS	G --
	C857	30022338	CAP SMD 4.7NF 50V J X7R (0402) RoHS	G --
	C858	30022338	CAP SMD 4.7NF 50V J X7R (0402) RoHS	G --
	C859	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C860	30022240	CAP SMD 47PF 50V J COG (0402) ROHS	G --
	C861	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C862	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C868	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G --
	C870	30067972	CAP ELCH 100UF 35V M105C120mA6.3x7.7RoHS	G --
	C881	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C882	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C883	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C884	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C885	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C886	30062359	CAP SMD 47NF 16V K X7R (0402) ROHS	G --
	C904	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G --
	C905	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G --
	C906	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G --
	C910	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G --
	C912	30022347	CAP SMD 22NF 16V J X7R (0402) ROHS	G --
	C913	30051167	CAP SMD 220NF 10V X7R K (0402) ROHS	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	C942	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C943	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C944	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C945	30030099	CAP SMD 1NF 50V K X7R (0402) ROHS	G --
	C949	30022237	CAP SMD 27PF 50V J COG (0402) ROHS	G --
	C951	30022238	CAP SMD 33PF 50V J COG (0402) ROHS	G --
	C952	30022238	CAP SMD 33PF 50V J COG (0402) ROHS	G --
	C959	30022351	CAP SMD 47NF 16V J X5R (0402) ROHS	G --
	C965	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	C967	30022167	CAP SMD 4.7PF 50V J COG (402) ROHS	G --
	C968	30022165	CAP SMD 3.3PF 50V J COG (0402) RoHS	G --
	C970	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G --
	C971	30030097	CAP SMD 100NF 10V K X5R (0402) RoHS	G --
	C974	30050554	CAP SMD 1UF 6.3V M X5R (0402) RoHS	G --
	C990	30047296	CAP SMD 22UF 6.3V M X5R (0805) ROHS	G --
	C997	30050558	CAP SMD 100NF 16V K X5R (0402) ROHS	G --
RESISTORS				
	R1	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R10	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R102	30022098	RES SMD 1/16W 390R J 0402 RoHS	G --
	R103	30022112	RES SMD 1/16W 68K J 0402 RoHS	G --
	R104	30022084	RES SMD 1/16W 33K J 0402 RoHS	G --
	R1149	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1158	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1165	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1166	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1171	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1172	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1177	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1182	30021986	RES SMD 1/16W 4.7K F 0402 ROHS	G --
	R1183	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1187	30022140	RES SMD 1/16W 22K F (0402) RoHS	G --
	R1198	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R12	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1206	30022051	RES SMD 1/16W 2.7K J 0402 ROHS	G --
	R1209	30022051	RES SMD 1/16W 2.7K J 0402 ROHS	G --
	R1221	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1233	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R124	30000588	RES SMD 1/10W 220R J 0805 ROHS	G --
	R1243	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1244	30022020	RES SMD 1/16W 560R F 0402 RoHS	G --
	R1245	30022020	RES SMD 1/16W 560R F 0402 RoHS	G --
	R1248	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1249	30021960	RES SMD 1/16W 47R J 0402 ROHS	G --
	R1265	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1309	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1310	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1311	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1313	30022058	RES SMD 1/16W 22R J 0402 ROHS	G --
	R1332	30022058	RES SMD 1/16W 22R J 0402 ROHS	G --
	R1355	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1356	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1357	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1358	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1364	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1365	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1366	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1367	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1368	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1369	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1370	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1380	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1382	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1383	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	R1384	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1385	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1388	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1389	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1390	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1392	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1393	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1394	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1395	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1396	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1397	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1398	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1399	30042505	RES NET 1/32W 33R J 8P 0402 ROHS	G --
	R1401	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1402	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1408	30070980	FERRIT SMD 220R/100Mhz 0.35R M 0.3A 402R	G --
	R1409	30070980	FERRIT SMD 220R/100Mhz 0.35R M 0.3A 402R	G --
	R1411	30055434	RES SMD 1/16W 62R J 0402 ROHS	G --
	R1412	30055434	RES SMD 1/16W 62R J 0402 ROHS	G --
	R1415	30055434	RES SMD 1/16W 62R J 0402 ROHS	G --
	R1419	30070980	FERRIT SMD 220R/100Mhz 0.35R M 0.3A 402R	G --
	R1420	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R1421	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R1422	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R1423	30022003	RES SMD 1/16W 470R J 0402 ROHS	G --
	R1424	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1425	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1427	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1479	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1480	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1481	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1482	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1483	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1486	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1489	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1494	30022003	RES SMD 1/16W 470R J 0402 ROHS	G --
	R1495	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1496	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1505	30022003	RES SMD 1/16W 470R J 0402 ROHS	G --
	R1512	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1513	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1514	30022085	RES SMD 1/16W 33R J 0402 RoHS	G --
	R1515	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1516	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1517	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1524	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1527	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1530	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R1533	30022043	RES SMD 1/16W 1M J 0402 ROHS	G --
	R1543	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1562	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1563	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1567	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1568	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1569	30022056	RES SMD 1/16W 220R J 0402 RoHS	G --
	R1570	30022056	RES SMD 1/16W 220R J 0402 RoHS	G --
	R1571	30022056	RES SMD 1/16W 220R J 0402 RoHS	G --
	R1572	30022056	RES SMD 1/16W 220R J 0402 RoHS	G --
	R1587	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1597	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1601	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1603	30022058	RES SMD 1/16W 22R J 0402 ROHS	G --
	R1604	30022084	RES SMD 1/16W 33K J 0402 RoHS	G --
	R1605	30022084	RES SMD 1/16W 33K J 0402 RoHS	G --
	R1606	30022039	RES SMD 1/16W 18K F 0402 RoHS	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	R1607	30022039	RES SMD 1/16W 18K F 0402 RoHS	G --
	R1609	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1610	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1613	30041373	RES NET 1/16W 22R J 8P 0402 ROHS	G --
	R1614	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1615	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1617	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1618	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1619	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1620	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1621	30022118	RES SMD 1/16W 75R J 0402 RoHS	G --
	R1632	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1635	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1636	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1638	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1639	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1642	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1661	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1662	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1663	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1666	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1667	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1668	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1671	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1672	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1676	30022041	RES SMD 1/16W 1K F 0402 ROHS	G --
	R1677	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1678	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1679	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1684	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1685	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1686	30022099	RES SMD 1/16W 39K J 0402 ROHS	G --
	R1687	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1691	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1693	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1696	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1699	30021958	RES SMD 1/16W 47K J 0402 RoHS	G --
	R1701	30021989	RES SMD 1/16W 100K J 0402 ROHS	G --
	R1702	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1704	30022088	RES SMD 1/16W 680R F 0402 ROHS	G --
	R1710	30021994	RES SMD 1/16W 10K F 0402 ROHS	G --
	R1715	30022132	RES SMD 1/16W 0R 0402 ROHS	G --
	R1716	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1718	30021989	RES SMD 1/16W 100K J 0402 ROHS	G --
	R1720	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1721	30021991	RES SMD 1/16W 100R J 0402 ROHS	G --
	R1725	30021960	RES SMD 1/16W 47R J 0402 ROHS	G --
	R1727	30022084	RES SMD 1/16W 33K J 0402 RoHS	G --
	R1734	30022024	RES SMD 1/16W 12K J 0402 ROHS	G --
	R1736	30022140	RES SMD 1/16W 22K F (0402) RoHS	G --
	R1738	30022053	RES SMD 1/16W 20K F 0402 ROHS	G --
	R1741	30038984	RES NET 1/32W 100R J 8P 0402 ROHS	G --
	R1748	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G --
	R1749	30022084	RES SMD 1/16W 33K J 0402 RoHS	G --
	R1750	30022057	RES SMD 1/16W 22K J 0402 RoHS	G --
	R1761	30038984	RES NET 1/32W 100R J 8P 0402 ROHS	G --
	R1768	30064848	RES SMD 1/16W 3.3K F (0402) RoHS	G --
	R1769	30021989	RES SMD 1/16W 100K J 0402 ROHS	G --
	R1770	30022026	RES SMD 1/16W 150K J 0402 RoHS	G --
	R1833	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1835	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1836	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1838	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1840	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --
	R1854	30021996	RES SMD 1/16W 10K J 0402 ROHS	G --

	REF No.	PARTS	DESCRIPTION	*	PRICE CODE
	R1855	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1858	30022056	RES SMD 1/16W 220R J 0402 RoHS	G	--
	R1859	30022056	RES SMD 1/16W 220R J 0402 RoHS	G	--
	R1862	30021958	RES SMD 1/16W 47K J 0402 RoHS	G	--
	R1863	30021958	RES SMD 1/16W 47K J 0402 RoHS	G	--
	R1864	30021958	RES SMD 1/16W 47K J 0402 RoHS	G	--
	R1865	30021958	RES SMD 1/16W 47K J 0402 RoHS	G	--
	R1867	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1868	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1869	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1870	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1871	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1872	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1873	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1874	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1875	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1876	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1877	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1878	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1879	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1880	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1881	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1882	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1883	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1884	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1885	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1886	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1887	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1888	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1889	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1890	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1895	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1896	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1897	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1898	30022055	RES SMD 1/16W 220K J 0402 ROHS	G	--
	R1899	30022055	RES SMD 1/16W 220K J 0402 ROHS	G	--
	R1900	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1901	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1902	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1903	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1904	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1907	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1908	30022056	RES SMD 1/16W 220R J 0402 RoHS	G	--
	R1909	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R1910	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R1911	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R1912	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R1913	30022084	RES SMD 1/16W 33K J 0402 RoHS	G	--
	R1914	30022084	RES SMD 1/16W 33K J 0402 RoHS	G	--
	R1915	30022055	RES SMD 1/16W 220K J 0402 ROHS	G	--
	R1916	30022055	RES SMD 1/16W 220K J 0402 ROHS	G	--
	R1917	30021999	RES SMD 1/16W 10R J 0402 RoHS	G	--
	R1918	30022024	RES SMD 1/16W 12K J 0402 ROHS	G	--
	R1919	30022024	RES SMD 1/16W 12K J 0402 ROHS	G	--
	R1920	30022024	RES SMD 1/16W 12K J 0402 ROHS	G	--
	R1921	30022024	RES SMD 1/16W 12K J 0402 ROHS	G	--
	R1924	30022057	RES SMD 1/16W 22K J 0402 RoHS	G	--
	R1925	30022057	RES SMD 1/16W 22K J 0402 RoHS	G	--
	R1926	30022116	RES SMD 1/16W 75K J 0402 ROHS	G	--
	R1927	30022116	RES SMD 1/16W 75K J 0402 ROHS	G	--
	R1928	30022053	RES SMD 1/16W 20K F 0402 ROHS	G	--
	R1929	30022053	RES SMD 1/16W 20K F 0402 ROHS	G	--
	R1936	30021960	RES SMD 1/16W 47R J 0402 ROHS	G	--
	R1937	30021960	RES SMD 1/16W 47R J 0402 ROHS	G	--
	R1940	30022028	RES SMD 1/16W 150R J 0402 RoHS	G	--

	REF No.	PARTS	DESCRIPTION	*	PRICE CODE
	R1941	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R1942	30022085	RES SMD 1/16W 33R J 0402 RoHS	G	--
	R1949	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1950	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R1951	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1952	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1953	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1954	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1959	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R1960	30022088	RES SMD 1/16W 680R F 0402 ROHS	G	--
	R1963	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1967	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1968	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1969	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1970	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R1971	30022124	RES SMD 1/16W 9.1K F (0402) ROHS	G	--
	R1974	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	R1975	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	R1976	30063648	FERRIT SMD 120/100MHz 0.09R M1.2A 0402Ro	G	--
	R1977	30022038	RES SMD 1/16W 180R J (0402) RoHS	G	--
	R1982	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R1983	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R1984	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R1985	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R1986	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R1987	30022058	RES SMD 1/16W 22R J 0402 ROHS	G	--
	R221	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R222	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R223	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R24	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	R29	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R30	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R33	30022085	RES SMD 1/16W 33R J 0402 RoHS	G	--
	R34	30022085	RES SMD 1/16W 33R J 0402 RoHS	G	--
	R344	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R46	30022003	RES SMD 1/16W 470R J 0402 ROHS	G	--
	R47	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R48	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R49	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R5	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R50	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R54	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R57	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R6	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R60	30021996	RES SMD 1/16W 10K J 0402 ROHS	G	--
	R620	30021991	RES SMD 1/16W 100R J 0402 ROHS	G	--
	R74	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R75	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R76	30022041	RES SMD 1/16W 1K F 0402 ROHS	G	--
	R793	30021960	RES SMD 1/16W 47R J 0402 ROHS	G	--
	R8	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	R844	30021990	RES SMD 1/16W 4.7R J 0402 ROHS	G	--
	R845	30021990	RES SMD 1/16W 4.7R J 0402 ROHS	G	--
	R9	30021987	RES SMD 1/16W 4.7K J 0402 RoHS	G	--
	S10	30001734	RES SMD 1/10W 0R 0805 ROHS	G	--
	S16	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S21	30001734	RES SMD 1/10W 0R 0805 ROHS	G	--
	S38	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S40	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S41	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S76	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S83	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S85	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S86	30022132	RES SMD 1/16W 0R 0402 ROHS	G	--
	S92	30022056	RES SMD 1/16W 220R J 0402 RoHS	G	--

	REF No.	PARTS	DESCRIPTION		PRICE * CODE
MISCELLANEOUS PARTS					
	CN1	30072383	SOCKET USB A TYPE FEMALE SIDE SMT TH RHS	G	--
	CN137	30060746	CONN FFC 30P 1MM TOP LVDS ROHS	G	--
	CN141	30067876	SOCKET PCMCIA S.DECK 4mm HEADERonly RoHS	G	--
	CN703	30063090	CONN HEADER 5P 2.0MM SIDE W/LOCK RoHS	G	--
	CN706	30066909	CONN HEADER 2X10P 2.54MM SIDE W/LOCK RHS	G	--
	CN707	30070082	SOCKET HDMI 19P 0.5MM TOP PIP ROHS	G	--
	CN708	30070082	SOCKET HDMI 19P 0.5MM TOP PIP ROHS	G	--
	CN709	30066919	CONN HEADER 6P 2.0MM SIDE W/LOCK RoHS	G	--
	CN710	30066919	CONN HEADER 6P 2.0MM SIDE W/LOCK RoHS	G	--
	CN711	30071149	SOCKET D-SUB 15P TOP PIP SHIELD RoHS	G	--
	JK1	30071260	JACK HEADPHONE GREEN 3 POLE SIDE PIPROHS	G	--
	JK10	30066835	JACK RCA 1P BLACK TOP RoHS	G	--
	JK3	30071258	JACK HEADPHONE YLW 3 POLE SIDE PIP ROHS	G	--
	JK6	30071259	JACK HEADPHONE BLK 3 POLE SIDE PIP ROHS	G	--
	PL1	35028251	GROUND TERMINAL Main Board 8.5X8.3 Rohs	G	--
	PL2	35028251	GROUND TERMINAL Main Board 8.5X8.3 Rohs	G	--
	PL3	35028251	GROUND TERMINAL Main Board 8.5X8.3 Rohs	G	--
	PL4	35028251	GROUND TERMINAL Main Board 8.5X8.3 Rohs	G	--
	SC1	30070522	SOCKET SCART 21P TOP LEFT BLACK PIP ROHS	G	--
17PW07					
LC32LE140E/VE/EK/RU POWER SUPPLY					
INTEGRATED CIRCUITS					
	IC100	30053502	IC PFC FAN7529 S08 ROHS	G	--
	IC200	30015087	IC SAFE OPTOCOUPLER TCET1102G	G	--
	IC201	30015087	IC SAFE OPTOCOUPLER TCET1102G	G	--
	IC202	30065433	IC PFM CONT FAN7621 SOP16 RoHS	G	--
	IC300	30015087	IC SAFE OPTOCOUPLER TCET1102G	G	--
	IC301	30063524	IC STAND-BY FSQ211 DIP8 ROHS	G	--
	IC302	30015087	IC SAFE OPTOCOUPLER TCET1102G	G	--
	IC400	30067808	IC PWM CONT NCP1579 S08 ROHS	G	--
	IC401	30066849	TR DN MOS FDS8984 7A/30V S08 RoHS	G	--
	IC402	30067808	IC PWM CONT NCP1579 S08 ROHS	G	--
	IC403	30066849	TR DN MOS FDS8984 7A/30V S08 RoHS	G	--
TRANSISTORS					
	Q100	30060725	TR NMOS STP9NK50ZFP 7.2A/500V TO220FROHS	G	--
	Q102	30068728	TR NMOS FQT1N60C 0.2A/600V SOT223 ROHS	G	--
	Q200	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q201	30060725	TR NMOS STP9NK50ZFP 7.2A/500V TO220FROHS	G	--
	Q202	30060725	TR NMOS STP9NK50ZFP 7.2A/500V TO220FROHS	G	--
	Q209	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q210	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q211	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q212	30029322	TR NMOS FDV303N 0.68A/25V SOT23 ROHS	G	--
	Q213	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q300	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q301	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q302	30001452	TR PBJT BC327 0.5A/45V TO92 ROHS	G	--
	Q303	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
	Q304	30001457	TR NBJT BC848B 0.1A/30V SOT23 ROHS	G	--
DIODES					
	D102	30057252	DIODE SMD RS1002FL 0.5A/200V SOD123FL RO	G	--
	D105	30036849	DIODE BRIDGE GBU8K 8A/800V 150A ROHS	G	--
	D106	30001319	DIODE RL207 2A/1000V 70A DO-15 ROHS	G	--
	D107	30051096	DIODE SMD ZEN C6.2V SOD123 ROHS	G	--
	D109	30001319	DIODE RL207 2A/1000V 70A DO-15 ROHS	G	--
	D111	30014352	DIODE MUR460 4A/600V DO-27 ROHS	G	--
	D112	30001319	DIODE RL207 2A/1000V 70A DO-15 ROHS	G	--
	D119	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D150	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D200	30008996	IC VREF TL431SAMF2 ADJ %1 SOT23 R	G	--

	REF No.	PARTS	DESCRIPTION		PRICE * CODE
	D201	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D202	30038481	DIODE SMD ZEN C6.8V SOD123 ROHS	G	--
	D203	30038475	DIODE SMD ZEN C10V SOD123 ROHS	G	--
	D204	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D206	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D207	30038495	DIODE SMD ZEN C22V SOD123 ROHS	G	--
	D208	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D209	30019996	DIODE SMD BAV70 215mA/75V 4A SOT23 RoHS	G	--
	D210	30038497	DIODE SMD ZEN C3.9V SOD123 ROHS	G	--
	D213	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D214	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D219	30001291	DIODE HER107 1A/800V 30A DO41 ROHS	G	--
	D220	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D223	30017624	DIODE SCH SB560 5A/60V DO201AD ROHS	G	--
	D224	30017624	DIODE SCH SB560 5A/60V DO201AD ROHS	G	--
	D226	30043523	DIODE SCH SB5100 5A/100V/150A DO201 ROHS	G	--
	D229	30043523	DIODE SCH SB5100 5A/100V/150A DO201 ROHS	G	--
	D232	30019382	DIODE SCH 1N5819 1A/40V DO41 ROHS	G	--
	D234	30019382	DIODE SCH 1N5819 1A/40V DO41 ROHS	G	--
	D238	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D239	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D246	30038477	DIODE SMD ZEN C8.2V SOD123 ROHS	G	--
	D300	30057252	DIODE SMD RS1002FL 0.5A/200V SOD123FL RO	G	--
	D301	30008996	IC VREF TL431SAMF2 ADJ %1 SOT23 R	G	--
	D302	30059220	DIODE SMD RS1008FL 0.5A/800V SOD123FL RO	G	--
	D303	30038498	DIODE SMD ZEN C18V SOD123 ROHS	G	--
	D304	30057252	DIODE SMD RS1002FL 0.5A/200V SOD123FL RO	G	--
	D305	30001345	DIODE ZEN 6.8V 0.5W SOD27 ROHS	G	--
	D308	30066697	DIODE SCH SR110 1A/100V/30A DO41 ROHS	G	--
	D309	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D401	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
	D404	30038507	DIODE SMD 1N4148 0.15A/100V SOD123 RoHS	G	--
COILS AND FILTERS					
	L101	30069003	LINE FILTER SAFE 2*11mH 1A OR17 10mm ROH	G	--
	L102	30069003	LINE FILTER SAFE 2*11mH 1A OR17 10mm ROH	G	--
	L104	20594513	CN.ASY.FerriteBead(FTZ)Axial8x17x7(MAKAR	G	--
	L105	20594513	CN.ASY.FerriteBead(FTZ)Axial8x17x7(MAKAR	G	--
	L201	30067937	Choke Coil 1uH 5A Axial M 0.7R 10x5.5 Ro	G	--
	L202	30067937	Choke Coil 1uH 5A Axial M 0.7R 10x5.5 Ro	G	--
	L205	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G	--
	L300	30067937	Choke Coil 1uH 5A Axial M 0.7R 10x5.5 Ro	G	--
	L302	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G	--
	L306	30002016	COIL AXI 150UH 85MA K 15R 2.7X7 RO	G	--
	L401	30062563	Choke coil Toroid Safe 33uH 3A K 6x12Ro	G	--
	L402	30001735	RES SMD 1/8W 0R 1206 ROHS	G	--
	L413	30062563	Choke coil Toroid Safe 33uH 3A K 6x12Ro	G	--
	L414	30001735	RES SMD 1/8W 0R 1206 ROHS	G	--
CAPACITORS					
	C100	30067966	CAP MKP SAFE 220NF275VMACX215BOXLEFTBROH	G	--
	C101	30070590	CAPEL 47UF 450VM105C1200mA12.5X40SHALEFT	G	--
	C102	30068025	CAP MKT SAFE 1UF 450V K 15DIPLB TOS RoHS	G	--
	C103	30070590	CAPEL 47UF 450VM105C1200mA12.5X40SHALEFT	G	--
	C105	30067966	CAP MKP SAFE 220NF275VMACX215BOXLEFTBROH	G	--
	C109	30069935	CAP CER SAFE 1.5NF 4KV M 3.5MMSHARoHS	G	--
	C112	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G	--
	C113	30069936	CAP CER SAFE 150PF 4KV M 3.5MMSHAROHS	G	--
	C114	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G	--
	C115	30068234	CAP MKP SAFE 100NF 275V M X2AC15BOX ROHS	G	--
	C116	30066377	CAP CER 220PF 1KV J YRN 125C(PULSE) ROHS	G	--
	C117	30000263	CAP SMD 56PF 50V J COG (0805) ROHS	G	--
	C118	30069936	CAP CER SAFE 150PF 4KV M 3.5MMSHAROHS	G	--
	C120	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G	--
	C121	30069939	CAP CER SAFE 330PF 4KV M 3.5MMSHAROHS	G	--

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	C122	30068025	CAP MKT SAFE 1UF 450V K 15DIPLB TOS RoHS	G --
	C123	30000284	CAP SMD 1NF 50V K X7R (0805) ROHS	G --
	C124	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C129	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C131	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C133	30068234	CAP MKP SAFE 100NF 275V M X2AC15BOX ROHS	G --
	C134	30069935	CAP CER SAFE 1.5NF 4KV M 3.5MMSHARoHS	G --
	C151	30069939	CAP CER SAFE 330PF 4KV M 3.5MMSHARoHS	G --
	C154	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C155	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C156	30046152	CAP SMD 1UF 50V Z Y5V (0805) ROHS	G --
	C181	30069939	CAP CER SAFE 330PF 4KV M 3.5MMSHARoHS	G --
	C190	30069935	CAP CER SAFE 1.5NF 4KV M 3.5MMSHARoHS	G --
	C191	30069939	CAP CER SAFE 330PF 4KV M 3.5MMSHARoHS	G --
	C193	30069936	CAP CER SAFE 150PF 4KV M 3.5MMSHARoHS	G --
	C195	30069935	CAP CER SAFE 1.5NF 4KV M 3.5MMSHARoHS	G --
	C198	30069936	CAP CER SAFE 150PF 4KV M 3.5MMSHARoHS	G --
	C200	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C201	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C207	30000309	CAP SMD 2.2NF 50V K X7R (0805) ROHS	G --
	C208	30070745	CAPEL 560UF 50V M105C 1500mA 8X40SHALEFT	G --
	C209	30070744	CAPEL 560UF 25V M105C1050mA 8X20SHALEFT	G --
	C210	30070745	CAPEL 560UF 50V M105C 1500mA 8X40SHALEFT	G --
	C211	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C212	30070744	CAPEL 560UF 25V M105C1050mA 8X20SHALEFT	G --
	C213	30070849	CAP EL 47UF 50V M 105C 90mA 8x7SHARPROHS	G --
	C214	30068808	CAP MKP 15NF 630Vdc/622VppJ15LBENRoHS	G --
	C216	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C217	30000309	CAP SMD 2.2NF 50V K X7R (0805) ROHS	G --
	C218	30070745	CAPEL 560UF 50V M105C 1500mA 8X40SHALEFT	G --
	C219	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G --
	C220	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C224	30070744	CAPEL 560UF 25V M105C1050mA 8X20SHALEFT	G --
	C228	30000265	CAP SMD 560PF 50V J COG (0805) ROHS	G --
	C230	30010561	CAP SMD 220NF 50V K X7R (0805) ROHS	G --
	C231	30000256	CAP SMD 470PF 50V J COG (0805) ROHS	G --
	C240	30070744	CAPEL 560UF 25V M105C1050mA 8X20SHALEFT	G --
	C300	30070849	CAP EL 47UF 50V M 105C 90mA 8x7SHARPROHS	G --
	C302	30070849	CAP EL 47UF 50V M 105C 90mA 8x7SHARPROHS	G --
	C304	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C307	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C308	30070849	CAP EL 47UF 50V M 105C 90mA 8x7SHARPROHS	G --
	C309	30066237	CAP MKP 4.7NF 630VDC/622VPP K 7.5BOXROHS	G --
	C315	30070589	CAPEL 4.7UF 450VM 105C70mA10x12.5SHALEFT	G --
	C319	30067959	CAP EL 1000UF 16V M 105C 8x20LEFTBENDROH	G --
	C323	30070746	CAPEL 470UF 10V M105C 640mA 8X12 SHALEFT	G --
	C325	30070849	CAP EL 47UF 50V M 105C 90mA 8x7SHARPROHS	G --
	C326	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C400	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C401	30070746	CAPEL 470UF 10V M105C 640mA 8X12 SHALEFT	G --
	C402	30070746	CAPEL 470UF 10V M105C 640mA 8X12 SHALEFT	G --
	C403	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G --
	C404	30015459	CAP SMD 470NF 25V K X7R (0805) ROHS	G --
	C405	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C406	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C407	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C408	30000284	CAP SMD 1NF 50V K X7R (0805) ROHS	G --
	C411	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G --
	C412	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C413	30000284	CAP SMD 1NF 50V K X7R (0805) ROHS	G --
	C416	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C418	30066875	CAP SMD 22UF 16V M X7R (1206) RoHSiptal	G --
	C419	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C421	30000294	CAP SMD 100NF 50V K X7R (0805) ROHS	G --
	C422	30015459	CAP SMD 470NF 25V K X7R (0805) ROHS	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	C425	30000224	CAP SMD 220PF 50V J COG (0805) ROHS	G --
	C426	30000341	CAP SMD 68NF 50V K X7R (0805) ROHS	G --
	C427	30000341	CAP SMD 68NF 50V K X7R (0805) ROHS	G --
	C428	30000224	CAP SMD 220PF 50V J COG (0805) ROHS	G --
	C429	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G --
	C430	30061026	CAP SMD 1UF 25V K X7R (0805) ROHS	G --
	C431	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
	C434	30052271	CAP SMD 10UF 25V K X5R (1206) ROHS	G --
RESISTORS				
	R100	30069236	CAP VAR SAFE 510V K JVR14N511K87140 ROHS	G --
	R101	30007789	RES SMD 1/10W 27K F 0805 ROHS	G --
	R102	30000480	RES SMD 1/10W 100K J 0805 ROHS	G --
	R103	30072705	RES SMD 1/3W HV 620K F 1206 ROHS	G --
	R104	30072705	RES SMD 1/3W HV 620K F 1206 ROHS	G --
	R105	30072705	RES SMD 1/3W HV 620K F 1206 ROHS	G --
	R106	30000597	RES SMD 1/10W 22K J 0805 ROHS	G --
	R107	30000710	RES SMD 1/10W 47R J 0805 ROHS	G --
	R109	30006765	RES MO 2W 0.22R J TAPED RoHS	G --
	R110	30000480	RES SMD 1/10W 100K J 0805 ROHS	G --
	R112	30064313	RES SMD 1/10W 12K F (0805) ROHS	G --
	R116	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R120	30000571	RES SMD 1/10W 180K J 0805 ROHS	G --
	R125	30050064	RES SMD 1/4W 1.62M F 1206 ROHS	G --
	R126	30050064	RES SMD 1/4W 1.62M F 1206 ROHS	G --
	R127	30039196	RES SMD 1/4W 1M F 1206 ROHS	G --
	R128	30050064	RES SMD 1/4W 1.62M F 1206 ROHS	G --
	R129	30050064	RES SMD 1/4W 1.62M F 1206 ROHS	G --
	R130	30039196	RES SMD 1/4W 1M F 1206 ROHS	G --
	R136	30007789	RES SMD 1/10W 27K F 0805 ROHS	G --
	R137	30000755	RES SMD 1/10W 56K J 0805 ROHS	G --
	R147	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R148	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R149	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	R150	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	R163	30000586	RES SMD 1/8W 220R J 1206 ROHS	G --
	R200	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R201	30000503	RES SMD 1/10W 12K J 0805 ROHS	G --
	R202	30000563	RES SMD 1/10W 1.8K J 0805 ROHS	G --
	R203	30000778	RES SMD 1/10W 6.8K J 0805 ROHS	G --
	R204	30000653	RES SMD 1/10W 33R J 0805 ROHS	G --
	R205	30000653	RES SMD 1/10W 33R J 0805 ROHS	G --
	R206	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R207	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R212	30007026	RES SMD 1/10W 5.1K J 0805 ROHS	G --
	R214	30000664	RES SMD 1/10W 3.3K J 0805 ROHS	G --
	R215	30000464	RES SMD 1/10W 100R J 0805 ROHS	G --
	R216	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R217	30012852	RES SMD 1/10W 3.9K F 0805 ROHS	G --
	R218	30058193	RES SMD 1/8W 30K F 0805 ROHS	G --
	R219	30007789	RES SMD 1/10W 27K F 0805 ROHS	G --
	R220	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R222	30000503	RES SMD 1/10W 12K J 0805 ROHS	G --
	R223	30000659	RES SMD 1/10W 330R J 0805 ROHS	G --
	R224	30007026	RES SMD 1/10W 82K F 0805 ROHS	G --
	R225	30000747	RES SMD 1/10W 560R J 0805 ROHS	G --
	R226	30000480	RES SMD 1/10W 100K J 0805 ROHS	G --
	R227	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R228	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R229	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R230	30001160	RES MO 2W 0.33R J RoHS	G --
	R231	30025823	RES SMD 1/10W 15K F 0805 ROHS	G --
	R232	30020394	FERRIT SMD 330/100MHZ 0.1R M 1.5A 805RO	G --
	R233	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R234	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	R235	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R236	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R237	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R238	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R239	30000818	RES SMD 1/10W 8.2K J 0805 ROHS	G --
	R240	30000494	RES SMD 1/10W 120R J 0805 ROHS	G --
	R243	30012355	RES SMD 1/10W 6.8K F 0805 RoHS	G --
	R244	30000593	RES SMD 1/10W 2.2K J 0805 ROHS	G --
	R245	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R246	30000644	RES SMD 1/10W 3K J 0805 ROHS	G --
	R247	30012852	RES SMD 1/10W 3.9K F 0805 ROHS	G --
	R248	30000717	RES SMD 1/10W 470R J 0805 ROHS	G --
	R252	30000464	RES SMD 1/10W 100R J 0805 ROHS	G --
	R253	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	R255	30000664	RES SMD 1/10W 3.3K J 0805 ROHS	G --
	R256	30000747	RES SMD 1/10W 560R J 0805 ROHS	G --
	R257	30000626	RES SMD 1/10W 270R J 0805 ROHS	G --
	R258	30000747	RES SMD 1/10W 560R J 0805 ROHS	G --
	R259	30000593	RES SMD 1/10W 2.2K J 0805 ROHS	G --
	R260	30000457	RES SMD 1/10W 10R J 0805 ROHS	G --
	R261	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R262	30006462	RES SMD 1/10W 22R J 0805 ROHS	G --
	R263	30000480	RES SMD 1/10W 100K J 0805 ROHS	G --
	R266	30000664	RES SMD 1/10W 3.3K J 0805 ROHS	G --
	R301	30000529	RES SMD 1/10W 1.5K J 0805 ROHS	G --
	R305	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R306	30000727	RES SMD 1/10W 47K J 0805 ROHS	G --
	R307	30000506	RES SMD 1/10W 120K J 0805 ROHS	G --
	R308	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R309	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R310	30000774	RES SMD 1/10W 680R J 0805 ROHS	G --
	R311	30000612	RES CF 1/4W 2.4K J	G --
	R312	30020394	FERRIT SMD 330/100MHZ 0.1R M 1.5A 805RO	G --
	R313	30000797	RES SMD 1/10W 75R J 0805 ROHS	G --
	R314	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R315	30064316	RES SMD 1/8W 3.3K F (0805) ROHS	G --
	R316	30015473	RES SMD 1/10W 150R F 0805 ROHS	G --
	R317	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R318	30007789	RES SMD 1/10W 27K F 0805 ROHS	G --
	R320	30000638	RES CF 1/4W 270K J ROHS	G --
	R322	30020394	FERRIT SMD 330/100MHZ 0.1R M 1.5A 805RO	G --
	R324	30025823	RES SMD 1/10W 15K F 0805 ROHS	G --
	R325	30000668	RES SMD 1/10W 33K J 0805 ROHS	G --
	R329	30000455	RES SMD 1/8W 10R J (1206) ROHS	G --
	R330	30000626	RES SMD 1/10W 270R J 0805 ROHS	G --
	R331	30000626	RES SMD 1/10W 270R J 0805 ROHS	G --
	R337	30000529	RES SMD 1/10W 1.5K J 0805 ROHS	G --
	R338	30070785	RES MG SAFE 1/2W 7.8M J NEW ROHS	G --
	R400	30000609	RES SMD 1/10W 2.2R J 0805 ROHS	G --
	R401	30064316	RES SMD 1/8W 3.3K F (0805) ROHS	G --
	R403	30000517	RES SMD 1/10W 15R J 0805 ROHS	G --
	R406	30000609	RES SMD 1/10W 2.2R J 0805 ROHS	G --
	R407	30000751	RES SMD 1/10W 5.6K J 0805 ROHS	G --
	R409	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R410	30000653	RES SMD 1/10W 33R J 0805 ROHS	G --
	R411	30000735	RES SMD 1/10W 4.7R J 0805 ROHS	G --
	R412	30000735	RES SMD 1/10W 4.7R J 0805 ROHS	G --
	R414	30000609	RES SMD 1/10W 2.2R J 0805 ROHS	G --
	R417	30064582	RES SMD 1/8W 18K F 0805 ROHS	G --
	R418	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R419	30007021	RES SMD 1/10W 1K F 0805 ROHS	G --
	R420	30000735	RES SMD 1/10W 4.7R J 0805 ROHS	G --
	R421	30000735	RES SMD 1/10W 4.7R J 0805 ROHS	G --
	R422	30000609	RES SMD 1/10W 2.2R J 0805 ROHS	G --
	R424	30000593	RES SMD 1/10W 2.2K J 0805 ROHS	G --

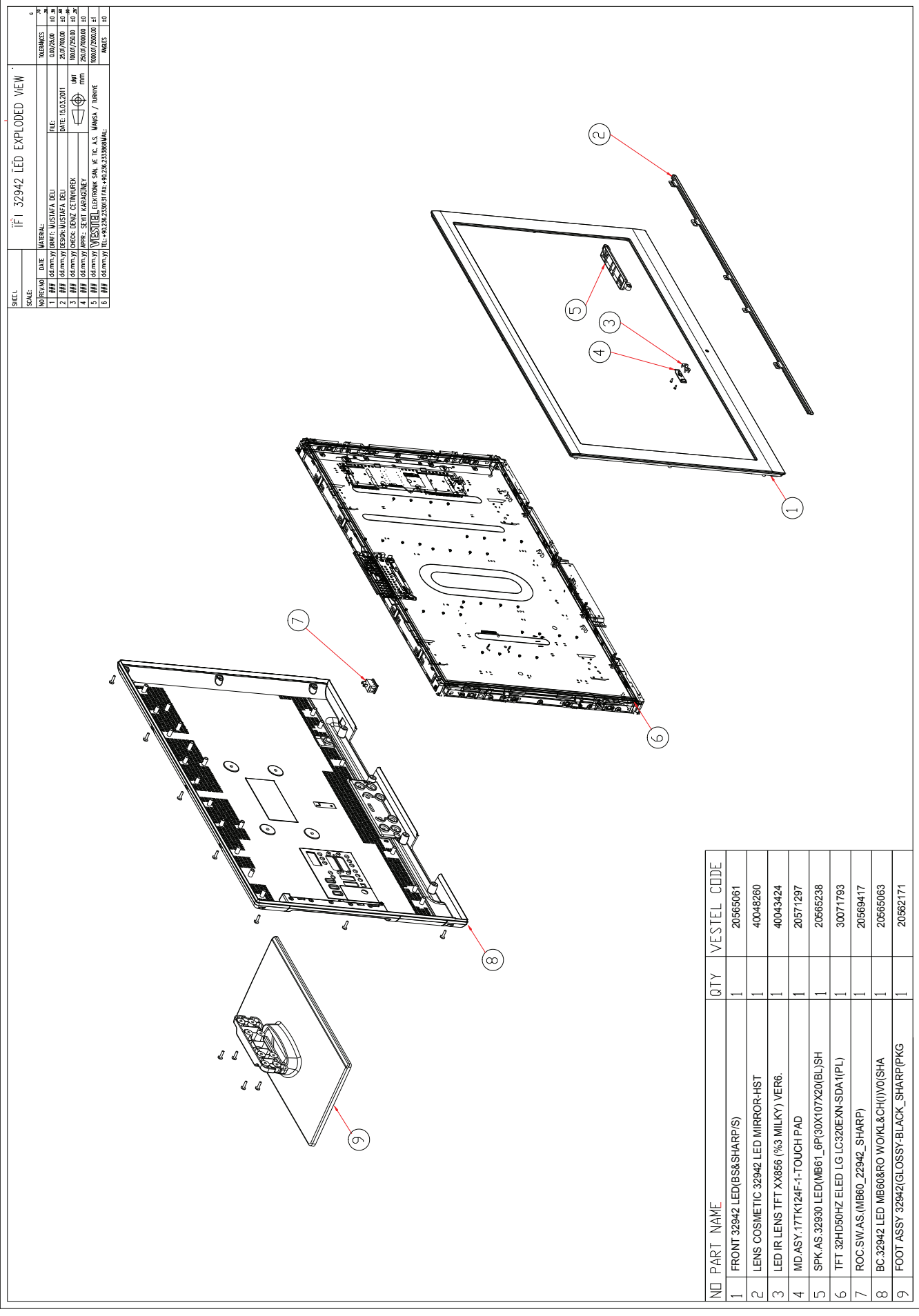
	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	R425	30000475	RES SMD 1/10W 10K J 0805 ROHS	G --
	R426	30064582	RES SMD 1/8W 18K F 0805 ROHS	G --
	R427	30000593	RES SMD 1/10W 2.2K J 0805 ROHS	G --
	R428	30000593	RES SMD 1/10W 2.2K J 0805 ROHS	G --
	R429	30007026	RES SMD 1/10W 5.1K J 0805 ROHS	G --
MISCELLANEOUS PARTS				
	F100	30028356	FUSE SAFE 3.15A 250V (RADIAL) ROHS	G --
	F101	30028356	FUSE SAFE 3.15A 250V (RADIAL) ROHS	G --
	F200	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	FR100	30006712	FERRIT BEAD AXI 70/100M 3A 3.5x4.7Roh	G --
	FR101	30006712	FERRIT BEAD AXI 70/100M 3A 3.5x4.7Roh	G --
	FR400	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G --
	FR401	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G --
	FR402	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G --
	FR403	30006712	FERRIT BEAD AXI 70/100M 3A 3.5x4.7Roh	G --
	FR404	30006712	FERRIT BEAD AXI 70/100M 3A 3.5x4.7Roh	G --
	FR405	30024779	FERRIT SMD 50R/100MHZ 0.4R M 3A 1206 ROH	G --
	J103	30002583	JUMPER 0.6MM	G --
	J104	30002583	JUMPER 0.6MM	G --
	J105	30002583	JUMPER 0.6MM	G --
	J107	30002583	JUMPER 0.6MM	G --
	J108	30002583	JUMPER 0.6MM	G --
	J110	30002583	JUMPER 0.6MM	G --
	J111	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J113	30002583	JUMPER 0.6MM	G --
	J114	30002583	JUMPER 0.6MM	G --
	J115	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J116	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J118	30002583	JUMPER 0.6MM	G --
	J119	30002583	JUMPER 0.6MM	G --
	J120	30002583	JUMPER 0.6MM	G --
	J121	30002583	JUMPER 0.6MM	G --
	J122	30002583	JUMPER 0.6MM	G --
	J124	30002583	JUMPER 0.6MM	G --
	J125	30002583	JUMPER 0.6MM	G --
	J126	30002583	JUMPER 0.6MM	G --
	J127	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J129	30002583	JUMPER 0.6MM	G --
	J130	30002583	JUMPER 0.6MM	G --
	J132	30002583	JUMPER 0.6MM	G --
	J133	30002583	JUMPER 0.6MM	G --
	J134	30002583	JUMPER 0.6MM	G --
	J136	30002583	JUMPER 0.6MM	G --
	J137	30002583	JUMPER 0.6MM	G --
	J138	30002583	JUMPER 0.6MM	G --
	J139	30002583	JUMPER 0.6MM	G --
	J140	30002583	JUMPER 0.6MM	G --
	J141	30002583	JUMPER 0.6MM	G --
	J143	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	J144	30002583	JUMPER 0.6MM	G --
	J145	30002583	JUMPER 0.6MM	G --
	J146	30002583	JUMPER 0.6MM	G --
	J147	30002583	JUMPER 0.6MM	G --
	J149	30002583	JUMPER 0.6MM	G --
	J150	30002583	JUMPER 0.6MM	G --
	J153	30002583	JUMPER 0.6MM	G --
	J154	30002583	JUMPER 0.6MM	G --
	J155	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J156	30002583	JUMPER 0.6MM	G --
	J157	30002583	JUMPER 0.6MM	G --
	J158	30002583	JUMPER 0.6MM	G --
	J159	30002583	JUMPER 0.6MM	G --
	J160	30002583	JUMPER 0.6MM	G --
	J161	30002583	JUMPER 0.6MM	G --

	REF No.	PARTS	DESCRIPTION	* PRICE CODE
	J162	30002583	JUMPER 0.6MM	G --
	J163	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J164	30002583	JUMPER 0.6MM	G --
	J166	30002583	JUMPER 0.6MM	G --
	J167	30002583	JUMPER 0.6MM	G --
	J169	30002583	JUMPER 0.6MM	G --
	J170	30002583	JUMPER 0.6MM	G --
	J174	30002583	JUMPER 0.6MM	G --
	J175	30002583	JUMPER 0.6MM	G --
	J176	30002583	JUMPER 0.6MM	G --
	J179	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	J180	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	J181	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	J182	30002583	JUMPER 0.6MM	G --
	J183	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	J187	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	MD101	35027467	GROUND TERMINAL 4 MM GND-8 ROHS	G --
	MD102	35027587	GROUND TERMINAL 5 MM GND-20 ROHS	G --
	MD103	35027587	GROUND TERMINAL 5 MM GND-20 ROHS	G --
	MD200	35027467	GROUND TERMINAL 4 MM GND-8 ROHS	G --
	PG3	40045272	SPACER SUPPORT DCBS-8 RoHS V0	G --
	PG4	40045272	SPACER SUPPORT DCBS-8 RoHS V0	G --
	PL100	30070259	CONNHEADERSAFE 2PV0 7.92 R/A 3.5mmBLKRHS	G --
	PL100-	35000176	EYELET BR 2*3MM ROHS	G --
	PL100-	35000176	EYELET BR 2*3MM ROHS	G --
	PL101	30070232	CONNHEADER SAFE 2P V0 7.92SIDE 3.5mm RHS	G --
	PL101-	35000176	EYELET BR 2*3MM ROHS	G --
	PL101-	35000176	EYELET BR 2*3MM ROHS	G --
	PL205	30067935	CONN HEADER 2X14P 2.54 W/LOCK SIDE RoHS	G --
	PL306	30048870	CONN HEADER 12P 2.5MM SIDE WHT ROHS	G --
	S104	30002583	JUMPER 0.6MM	G --
	S117	30002583	JUMPER 0.6MM	G --
	S202	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	S207	30002583	JUMPER 0.6MM	G --
	S208	30002583	JUMPER 0.6MM	G --
	S300	30001735	RES SMD 1/8W 0R 1206 ROHS	G --
	S301	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	S303	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	S304	30001734	RES SMD 1/10W 0R 0805 ROHS	G --
	TH103	30067963	RES THE SAFE 10R/2.3A NTC 7mm RAD RoHS	G --
	TH105	30067963	RES THE SAFE 10R/2.3A NTC 7mm RAD RoHS	G --
	TR100	30068375	TRF PFC SAFE 250uH PQ35 10mm PW0426/32R	G --
	TR100-	35000176	EYELET BR 2*3MM ROHS	G --
	TR100-	35000176	EYELET BR 2*3MM ROHS	G --
	TR100-	35000176	EYELET BR 2*3MM ROHS	G --
	TR100-	35000176	EYELET BR 2*3MM ROHS	G --
	TR100-	35000176	EYELET BR 2*3MM ROHS	G --
	TR101	30068003	Choke Coil 150uH 3A K 20x20x10.5 RoHS	G --
	TR200	30068583	TRF SMT SAFE RES PW04 EEM4344 10mmDRIN R	G --
	TR300	30068115	TRF SMT SAFE 42" Slim EPC19 St-By 10mmRo	G --

CABINET AND MECHANICAL PARTS LISTING					
PARTS LISTING					
	REF No.	PARTS	DESCRIPTION	*	PRICE CODE
		20565061	FRONT 32942 LED(BS&SHARP/S)- Front Cabinet	G	--
		20565063	BC.32942LE 60&ROWO/KL&CH&SAM&AU(I)(SH) Back Cover	G	--
		40044553	COVER GROMET 30x30 (I)(V0)-Gromet c Over on Back Cover)	G	--
		40048260	LENS COSMETIC 32942 LED MIRROR-HST-Decoration on Front Cabinet	G	--
		40043424	LED IR LENS TFT XX856 (%3 MILKY) VER6.	G	--
		30069976	CNAS 8P-6/600 W/DC UL1571 AWG28 RoHS- Touch pad cable	G	--
		35028065	METAL_PLATE_MB60_LED_LCD32_2011 - under main board -	G	--
		35028347	METAL FOOT SUPPORT LED LCD32_SHARP_2011 - For stand foot support	G	--
		20569417	ROC.SW.AS.(MB60_22942_SHARP)	G	--
		20562171	FOOT ASSY 32942(GLOSSY-BLACK_SHARP(PKG) - Stand Foot -	G	--
		45010585	DETACHABLE SHARP ST. BLACK LCD32 LED PKG- Screws and foot support	G	--
		20565238	SPK.AS.32930 LED(MB61_6P(30X107X20(BL)SH) - Speakers -	G	--
		40047899	BRACKET IO MB61S 2011 VER10(I)ABS(V0(SH)	G	--
		30072577	CNAS28P-20P/450 SISW/DC BL-BL 1007#24SHA- DC voltage cable.	G	--
		20570371	CN.A.FFC 30P/450 SHL LVDS(LGEXNSDA1) LVDS FFC cable.	G	--
		30072557	CNAS 12P+14P/270 SISW/DC1007 SAMINV SHAR) Panel Inverter cable	G	--
ACCESORIES PARTS LISTING					
		30070136	PWR CORD SAFE EU 1800-70 W/GR+H 3P ROHS- (Power Cord EU)	G	--
		30069111	PWR CORD SAFE UK 1800-70 W/GR+H 3P ROHS (Power Cord UK)	G	--
		23003177	ARTWORK SHARP, IB, Accesories LC-32LE140E	G	--
		23006049	ARTWORK SHARP, IB, Accesories LC32LE140EV	G	--
		23006174	ARTWORK SHARP, IB, Accesories LC-32LE140EK	G	--
		23006177	ARTWORK SHARP, IB, Accesories LC-32LE140RU	G	--
		20601206	R/C 1910 SHARP&1910 (GRAY/S)(NEW) Remote Control.	G	--
PACKING PART LISTING					
		20556710	SNOW BOX ASSY (T/B) 32930 LED (Top, Bottom Strafors)	G	--
		20548318	SNOW BOX MIDDLE 200X130X170 (Middle Strafor)	G	--
		50200521	CARTON BOX SHARP LC-32LE140E - Carton Box	G	--
		50201300	CARTON BOX SHARP LC32LE140EV - Carton Box	G	--
		50201483	CARTON BOX SHARP LC-32LE140EK - Carton Box.	G	--
		50201486	CARTON BOX SHARP LC-32LE140RU -Carton Box	G	--

LC-32LE140 CABINET AND MECHANICAL PART LISTING

NO	PART NAME	QTY	VESTEL CODE
1	FRONT 32942 LED(BS&SHARP/S)	1	20565061
2	LENS COSMETIC 32942 LED MIRROR-HST	1	40048260
3	LED IR LENS TFT XX856 (%3 MILKY) VER6.	1	40043424
4	MD.ASY.17TK124F-1-TOUCH PAD	1	20571297
5	SPK.AS.32930 LED(MB61_6P(30X107X20(BL)SH	1	20565238
6	TFT 32HD50HZ ELED LG LC320EXN-SDA1(PL)	1	30071793
7	ROC.SW.AS.(MB60_22942_SHARP)	1	20569417
8	BC.32942 LED MB60&RO WOKL&CH(I)V0(SHA	1	20565063
9	FOOT ASSY 32942(GLOSSY-BLACK_SHARP(PKG	1	20562171



NO	PART NAME	QTY	VESTEL CODE
1	FRONT 32942 LED(BS&SHARP/S)	1	20565061
2	LENS COSMETIC 32942 LED MIRROR-HST	1	40048260
3	LED IR LENS TFT XX856 (%3 MILKY) VER6.	1	40043424
4	MD.ASY.17TK124F-1-TOUCH PAD	1	20571297
5	SPK.AS.32930 LED(MB61_6P(30X107X20(BL)SH	1	20565238
6	TFT 32HD50HZ ELED LG LC320EXN-SDA1(PL)	1	30071793
7	ROC.SW.AS.(MB60_22942_SHARP)	1	20569417
8	BC.32942 LED MB60&RO WOKL&CH(I)V0(SHA	1	20565063
9	FOOT ASSY 32942(GLOSSY-BLACK_SHARP(PKG	1	20562171



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